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HAPPY NEW YEAR

January 1947

SYMBOLS OF SIGNIFICANCE

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GUEST EDITORIAL

Endocrinology And The War

ARMA virumque cano. A good soldier must needs be a virile man. Dogged determination, stamina, brute strength and soldierly courage are masculine attributes. Virility is in reality a chemical expression and may be equated with androgenic function. The androgens are concerned not only with the secondary sexual characteristics but also with nitrogen metabolism, protein storage and muscle-mass. Poor gonadal function may be translated into terms of fatigue, instability, muscular weakness and lack of aggressiveness. These facts were taken into consideration when 13,000,000 men of draft age were examined for service with the Armed Forces. Of all those rejected for Service, one per cent, almost 40,000 cases, had some endocrine disorder. Preeminent amongst these were various phases of eunuchoidism.

Eunuchoidism is an entity which has become generally appreciated only in the past decade or so. The frequency of this syndrome was vividly brought to attention in the mass examination of men in our quest for manpower. It is a remarkable fact that though this syndrome has been known for centuries, the medical world has given it full cognizance only in the past decade or so. The apostle Matthew had discerned, "Some eunuchs were so born from their mother's womb and some eunuchs were so made by men and others were so made that they may enter the kingdom of Heaven."

Endocrinology had its earliest beginnings when the procurement of manpower for the harem was first effected. The highly specialized harem-guard served a unique purpose but he would hardly prove proper material for a military guard. As a result of Berthold's early work in 1849, it has been shown that a contentious, cocky, crowing rooster, when caponized, becomes a docile, quiet, fat fowl. When testes were transplanted, the fowl once more became aggressive and the cock-of-the-walk. It appears that personality, social attitudes, and the primitive instincts of fight, flight and self-preservation are greatly influenced by gonadal function.

Until recent years, man-made eunuchs were not uncommon. At one time, to preserve the sweet voices of the choir boys in a famous church of Rome, resort to castration appeared to be expedient. To meet with Matthew's bidding, voluntary castration has been carried out by some religious sects and also as a requisite for qualification in certain monastic orders. Today surgical castration is often practiced as an ameliorating measure for carcinoma of the prostate. But there are virile men who, even in this latter condition, refuse surgical castration, holding that the right to possession of their testicles is more dear than life itself. During the recent world conflict, surgical castration was at times necessarily performed because of the accidents of war. The profound changes in well being and personality, however, may be successfully averted today by the implantation of pellets of testosterone. The introduction during the war

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years, of hard compressed pellets of pure crystalline testosterone along with the Kearns trochar and cannula for pellet implantation has been a distinct advance in endocrinotherapy.

Another advance of import during the war years was the appreciation of the psychosomatic aspects of endocrinology. It has long been known that the higher brain centers markedly influence hypophysial activity. The hypothalamico-pituitary mechanism plays an important role in endocrine balance. The remarkable increase in the fertility index of the populace during the period of the war may be placed under this heading. How else can account be made for the striking increase in the incidence of conceptions among women who had been barren for many years before the war? The general birth rate increased tremendously and the increase certainly could not be attributed to improved nutritional or living conditions. The exultation, the excitement, and the mass hysteria of war time may well have caused a stirring in the primordial brain stem which harbors the centers of our primitive instincts and emotions. Preservation of the race must be brought into balance with the loss of mankind in battle. Can it be that such a mechanism sets up pathways which favorably influence pituitary function?

Emotions such as great desire or fear may upset the target glands through a block in the hypothalamico-pituitary pathway. Consider, for instance, the menstrual irregularities which result from emotional disturbances due to dire fear or great desire. Witness the barren young matron who, obsessed with an intense yearning for conception, experiences a prolonged period of amenorrhea accompanied by morning nausea and abdominal bloating. Witness again the impeccable young lady who, during an amorous adventure, suffers a moral blackout. Then fear of pregnancy takes reason prisoner, and an amenorrheic episode follows. In both instances, amenorrhea terminates abruptly on the assurance of the physician that they have been laboring under a misconception. During the war, the incidence of functional amenorrhea amongst the women in the Armed Forces was high. Sher studied the causes of delayed menstruation in the Women's Auxiliary Air Force (British). He found that 139 out of 2312 air women developed amenorrhea lasting from one to seven months. Change of environment and varying emotional experiences no doubt played a role in bringing about an imbalance in the hypothalamico-pituitary relationship.

The responsiveness of the endocrine glands to reactionary deviations of the external environment introduces the question of the relationship of the nervous system to the endocrine glands. The pituitary is under hormonal and neural control. The secretions of the anterior pituitary are directed at its target glands, i.e. gonads, adrenal cortex and the thyroid. These in turn modify anterior pituitary hormonal levels, thus setting up a reciprocal relationship. The higher centers of the brain, however, through the hypothalamico-hypophysial pathways temper the activity of pituitary function.

Subject to re-interpretation in the light of this concept are the obesities in certain maladjusted individuals, exophthalmic goiter in persons subjected to repeated psychic trauma, menstrual disturbances in women experiencing distressing emotional episodes, endocrine imbalance in the tormented young woman with anorexia nervosa. None too obvious mental hurts are reflected in disturbances of bodily function, just as illness and disorders of the body condition shade every thought and action.

> "We are not ourselves
> When nature being oppressed commands the mind
> To suffer with the body."
>
> KING LEAR.

Little may be said of the progress made in endocrinology during the war years. It was a period of adjustment and an opportunity was afforded to reflect and digest the rapid advances made in the field before the war.

In retrospect, two salient facts stand out. One has to do with the unexpected incidence of endocrinopathies detected in men of draft age. Obesity, gynecomastia, undescended testes, all forms of enuchoidism, Frohlich's syndrome, hypothyroidism, hyperthyroidism, diabetes mellitus, etc. were uncovered with a frequency that proved surprising. The other has to do with the appreciation of the psychosomatic aspects of endocrinology, particularly the increase in the fertility index of the general populace to such an extent as to give the highest birth rate ever experienced in the United States.

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Floral Eponym (46)

CORDIA

VALERIUS CORDUS, 1515-1544.

CORDUS was the son of the distinguished physician-botanist, Euricius Cordus. Botanists hold him in esteem because he was the "first to teach men to cease from dependence on the poor descriptions of the ancients, and to describe plants anew from nature." Medical men esteem him because he was the first to synthesize ether (1540). His lectures in Wittenberg on Dioscorides were so attractive that even the professors attended them. He died in Rome of malaria contracted while botanizing in the swamps of Italy. In his short life of 39 years, he laid the foundations of modern botany, introduced the pharmacopeia, and gave the first account of ether. There is no record in his life of love or emotion. Chauncey Leake suggests that he worked under the spell of romance, the romance of science itself.

Cordia is a large genus of tropical trees of the family of Boraginaceae. Many are important timber trees. C. Sebestena is a native of Southern Florida and tropical America. It is an evergreen tree, usually not more than 35 feet in height. It blooms most of the year. The scarlet or orange red bell shaped flowers are grouped in showy clusters.

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SOME OTOLARYNGOLOGICAL TOPICS OF INTEREST TO THE INTERNIST*

WATT W. EAGLE, M.D.,†
Durham, North Carolina.

There are several otolaryngological subjects which we wish to discuss tonight, all of which we hope and think are of interest to the general practitioner and internist. These subjects, all of which will be scantily outlined are: sphenopalatine ganglion neuralgia, temporomandibular joint syndrome, acetanilid and bromide intoxication, elongated styloid process, and secretory otitis media. Some of these topics you may rightfully think are restricted to the otolaryngological field, but it is hoped in this discussion to bring out points whereby they are of interest to the general practitioner or internist. By no means do patients with these diseases always seek the services of the otolaryngologist first. On the contrary, they frequently consult their physician first—and rightly so, for after all he is the guardian of their health.

Sphenopalatine Ganglion Neuralgia: This disease is not a particularly infrequent one and perhaps is mistaken for other conditions more often than any other head ailment. These patients complain of headache and consider themselves to have sinus infection, and at times they are *told* that they have sinus infection. They think they have a serious disease of the eyes, the ears, or the mastoid. They do suffer an intense pain, even to such extent that they have been known to actually commit suicide. Many of these patients have had many unnecessary dental extractions, intranasal packs or other intranasal therapy, numerous maxillary sinus punctures and irrigations, and even many sinus operations have been done—all without benefit.

Sphenopalatine ganglion neuralgia is characterized by a pain—very often termed headache by the patient— which is located in the root of the nose, the orbital space or eyeball; then it extends backwards through the ear of the same side, sometimes with most intense pain just behind the mastoid region. Occasionally this pain extends on into the neck, the shoulder, the arm, and rarely on even into the fingertips. There is no particular rhythm in frequency nor duration. The pains may last for several days, but in some patients the duration is only a few minutes. The condition is confused with sinusitis and other diseases because the patient thinks he has a headache; but when he is asked whether he is suffering from a *pain* or a *headache*, he will invariably state that he has a *pain*. The pain is never above the level of the eye and the ear, which differentiates it from many other disorders, notably migraine. It is usually unilateral and always recurs on the same side. There is swelling of nasal membranes and an increased amount of nasal discharge on the side of the pain.

It has been found that any condition which causes intumescence of the nasal membranes may stimulate the sphenopalatine ganglion by the contact of one intranasal structure on the other, which, as has been known for a long time, is never tolerated.

It has been determined that 85 per cent of the patients having this disease have an intranasal deformity of some type, either septal deviation, a septal spur, or a prominent turbinate—all of which bring the septum and the middle turbinate, or perhaps the inferior turbinate, into contact. About 10 per cent of the cases are found to be caused by infections or intoxications, such as dental abscesses, acute sinus infections, involving the posterior group, and the various toxemias, such as acetanilid and bromide intoxications, or in some cases due to cachexia or anaemias. There are, finally, about 5 per cent of patients who have emotional disorders which cause swelling of the nasal membranes, stimulating the disease.

The diagnosis of sphenopalatine ganglion neuralgia is very easily accomplished simply by the application of cocain on the mucous membrane overlying the ganglion itself. The ganglion lies just above and behind the posterior end of the middle turbinate. Pain is usually relieved in one or certainly two minutes after application of the cocain. It may be difficult to reach the sphenopalatine ganglion with the applicator of cocain, due to deformities in the nose, and in such cases one has to depend on shrink-

*Read before the Lynchburg Academy of Medicine, April 8, 1946.

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ing the nose with 1 per cent saline solution of ephedrin sulfate or ¼ per cent neosynephrin hydrochloride and then spraying the nose with 1 per cent butyn sulfate, which is a local anesthetic. Migraine and the various intracranial disorders are not influenced whatever by the cocain or butyn.

The treatment of sphenopalatine ganglion neuralgia necessitates the removal of the cause, which entails either the removal of a septal spur, the performance of a submucous resection of the nasal septum, the crushing laterally of turbinates, the removal of dental abscess or the drainage of an acute infection of the posterior group of sinuses—the sphenoid or the posterior ethmoids. One observes a happy patient after the severe pain of sphenopalatine ganglion neuralgia has been relieved by some of these measures, and the cure is usually permanent. The opiates, or any other type of medication, are of very little benefit, regardless of the manner administered, for a patient having an attack of sphenopalatine ganglion neuralgia.

Temporomandibular Joint Syndrome: Apparently the dentist became interested in the temporomandibular joint from a clinical standpoint before the otolaryngologist. The dental literature contained several articles relative to this joint previous to 1920. Since 1925 there have been occasional articles in the medical journals, and especially the otolaryngological journals, relating the experiences of otolaryngologists with this disease. I am dubious of the opinion which the dental profession has about the importance of the temporomandibular joint syndrome, since I am led to believe, after discussing the subject with several members of the dental profession, that it is not so important a syndrome as the otolaryngologists attempt to make of it. However, it is a definitely recognized condition. Probably the reason dentists are not so interested as we physicians is because the patients having the disease do not return to see their dentists but instead go to see their physicians or otolaryngologists.

Without citing any cases of our observation, we wish to state the otolaryngologist's viewpoint, for we are continually and literally repeatedly beseiged with these patients and there is nothing we can offer them. We consider the disease a dental problem and, therefore, we feel compelled to return these patients to their dentists.

Up to 1935 we indexed these patients as having "temporomandibular joint strain", but after the subject was uncovered in the otolaryngological journals in 1935 we have diagnosed the condition as "temporomandibular joint syndrome". Most of our patients had unilateral symptoms.

The symptoms relative to tempormandibular joint syndrome are mainly those of impaired hearing, stopped up ears, tinnitus of low and buzzing type, dull pain in the region about the ears—worse on mastication—and dizziness. The dizziness at times is extremely severe and is the only complaint. There is never nausea, vomiting or falling to one side, which would probably suggest Meniere's disease. In addition to the symptoms just enumerated, some patients may complain of pain or burning sensations in the throat, in the cheeks, the nose, and also burning of the tongue. Headache is sometimes a complaint, the headache being located in the temporal and parietal regions, or certainly in the vicinity of the joints.

Usually the history of the patient reveals a rather clear-cut period of onset, which almost invariably relates closely to the time of dental extractions in the molar regions. Happily only a few people having molar extractions have the symptoms belonging to the syndrome. Some of the patients have had complete extractions in the upper or lower jaw, or both jaws; while others have had molar extractions in the upper or lower region only. As a rule, the patient having a part or all of the above group of symptoms has usually traveled the rounds of various physicians if he has had symptoms for any time, and a casual impression obtained by the physician stamps him as a neurotic individual. The pain or other symptoms to the patient, however, is quite real and severe and he usually obtains very little or no sympathy from the examining physician. It has never occurred to the patient to return to his dentist, and unless the physician is on his guard, he will let the neurosis imprint influence him to the extent of not recognizing the true condition and, therefore, the patient is not referred by him back to the dentist.

The diagnosis of tempormandibular joint syndrome is confirmed by the history of molar extractions, which is shortly followed by any one, or the entire group, of the symptoms just enumerated. The diagnosis is further substantiated by palpating the temporomandibular joint with the patient opening and closing the mouth, which will elicit pain over the joint. Some of the patients have such intense

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pain that they refuse to open the mouth and have subsisted on liquid diets alone, and they may have lost considerable weight, and may suffer from avitaminosis. The patient may be relieved of dizziness by inflations of the eustachian tubes, which also relieves the impaired hearing and sensation of fullness in the ears, but unfortunately this freedom of symptoms is of very short duration and by no means permanent. The most accurate method of diagnosis of the condition is that of eliminating the symptoms by inserting rubber tubing, a flat cork or any other material—about one-sixth to one-quarter inch in thickness—between the anterior teeth to hold them apart, if they are present; or a much thicker object between the alveolar processes if the patient is edentulous. Within a period of fifteen to thirty minutes the patient is relieved of the symptoms. This is considered a pathognomonic sign.

The production of the syndrome is rather simple and is due primarily to the allowance of loose play of the condyles of the mandible in the glenoid fossa. This change in joint function is caused by relaxation of some of the muscles and the contraction of others which are attached to the mandible. Eventually the joint cavity becomes enlarged and erosion itself of the glenoid fossa occurs. Patients having headaches are thought to be those individuals having the most erosion in the glenoid fossa, or certainly to the extent that the thin plate of bone in the middle cranial fossa is thinned out by the loose play of the condyle, and the dura has become irritated. Patients having pain and burning in the temporal and auricular regions are those patients wherein the auriculo-temporal nerve is pinched. The auriculotemporal nerve branches off from the mandibular nerve and runs medially to the condyle and may be easily injured by compression. Those patients having dizziness have had a definite occlusion of the eustachian tube, which is more or less permanent, producing the typical symptoms of eustachian tube obstruction—such as tinnitus, impaired hearing, stopped up ears, and dizziness. Inflations of the tubes can produce only temporary relief because the pressure on the eustachian tube is continuous by the backward tilt of the condyle. Absorption of the air that has been inserted into the middle ear following catheterization of the eustachian tube is rather immediate, the vacuum recurring. It is absolutely impossible to inflate the middle ear on a few of these patients. It has been established that the pain in the tongue is due to irritation of the chorda tympani nerve in those cases where there is extensive erosion of the joint cavity.

The treatment of temporomandibular joint syndrome is that of providing a permanent method of stabilizing the condyles in the glenoid fossa. This can be accomplished only by building proper dentures, entailing the necessity of building the molar regions quite high in the dentures, or certainly to the extent that the original teeth presented—the keeping of the jaws apart in the normal position and allowing no over-bite at any time. If the condition has persisted for a long period of time and much atrophy and erosion of the glenoid fossa have occurred the results will not be as dramatic and satisfactory as those of a shorter duration.

The otolaryngologist and the physician are entirely helpless in relieving these patients' symptoms. It is entirely a dental proposition. It is our duty as physicians to recognize this condition and to refer the patient back to his dentist; and if proper dentures are not fitted and they again return to us, it is *again* our duty to refer them back to their dentist.

Acetanilid and Bromide Intoxication: It has been said with considerable truth that one of the most common afflictions of the human race is that of headache, and it is perhaps one of the most common causes of patients seeking their physician's advice. However, there are numerous patients who do not consult their physician, and who, during the recent war, were unable to see a physician, who resorted to self-medication. If one listens to the radio and reads the advertisements in the newspapers and magazines, or observes the placards on the highways, he is likely to be inveigled into some type of proprietary medication for headaches, if he has headaches. Practically all headache preparations contain acetanilid and bromides as their main constituents. Acetanilid or bromides, alone or combined, are good drugs, and because they do provide such immediate relief of a pain or headache, are only too frequently over-used. The Federal laws now require the manufacturers to state on the package that they are habit forming drugs and injurious if too often repeated. There are certain individuals, however, who never follow any directions given, and these are most likely the same patients who have some organic disturbance as the cause of their headache. Eventually the patient finds he can not do without the drug. In a short

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period of time, depending on the individual's mode of living, headaches may develop which are in addition to the headaches he originally complained of. These headaches are produced by the drugs and may be more severe than the original headaches.

Bromides by prolonged use will likely produce headache, and even a skin rash may occasionally occur. Acetanilid by repeated doses produces cyanosis of the mucosae and conjunctivae because the blood is no longer able to carry oxygen as it formerly did. These patients have headaches due to the resultant anoxemia. Sulf-hemoglobin and methemoglobin are formed in the blood. When the bromide replacement test is done, one may find variable results. This is due to the fact that a person eating large amounts of salt—sodium chloride—on his food may have no replacement of the chlorides by the bromides, although he may have taken large amounts of the headache preparations. Conversely, there are some individuals who have a marked replacement of the chlorides by the bromides because his intake of chlorides is minimal. Some of these patients may take only small amounts of bromides. It is a peculiar fact that most individuals who take headache preparations—such as the textile workers, the factory workers of any type, laboring people, or those who do close work with their eyes, are the individuals who eat very little salt.

It has been usually stated that a person's cerebral activity is diminished if he has a blood bromide content of more than 50 mgms. per cent. In the Southern States it is not uncommon to find 13 per cent or more of all patients admitted to the hospitals for various causes to have positive blood bromide tests, and that half of these patients have around 50 mgms. per cent or more bromide content of the blood. It is then not too difficult to understand why there are so many patients seeking admission to psychiatric hospitals. It has been found that from 3 per cent to 25 per cent of all patients in psychiatric hospitals have blood bromides on admission to the extent of toxicity.

Acetanilid poisoning is treated simply by the discontinuance of the drug. Brominism is treated by the ingestion of salt—plain sodium chloride—in large amounts, which in turn causes the patient to drink more water, which eventually will rid the blood stream more quickly of the accumulated bromides. It requires several weeks before the symptoms of bromide and acetanilid intoxication disappear. Mental confusion and slow cerebration may exist over several weeks to months duration. Patients having these intoxications must definitely understand they must not take any more preparations containing bromides and acetanilid, and it is important that relatives of the patient must cooperate to the extent of keeping all of these preparations away from the patient.

One wonders why this topic is mentioned from an otolaryngological aspect. It is simply because the otolaryngologist sees so very many patients with bromide and acetanilid intoxication seeking relief for headaches which the patient thinks are due to sinus infection. The otolaryngologist who is alert will not be misled and he will discover the patient's true condition. Artificial light during the examination is not satisfactory, since the cyanosis of the lips does not show up well. Ladies must be asked to remove their lipstick in order to see cyanosis. If fingernails are covered with polish, it is likewise impossible to note cyanosis.

At times it is very difficult to obtain a good history from these patients because they are reluctant to admit using these preparations. They may finally admit taking "one or two per day" but eventually may confess to ingesting up to twenty per day. It is important that these patients have no surgery performed because they are neither in physical nor mental condition for an operation, and healing would certainly be very delayed by the poor oxygen-carrying blood.

Elongated Styloid Process: About 1933 we became interested in a fairly rare condition insofar as clinical symptoms are exhibited. Anatomically elongated styloid processes had been found in about 4 per cent of individuals, but symptoms certainly have not appeared clinically in 1 per cent. Their presence is never known unless they are symptomatic. The normal styloid process is about 2½ cm. (1 inch) in length and is attached to the temporal bone on the inner surface of the mastoid just lateral to the jugular vein. Its origin is just medial and anterior to the stylo-mastoid foramen, through which the facial nerve makes its exit from the skull. The styloid process then runs forward and downward and lies immediately beneath the faucial tonsil. These styloid processes, even if elongated, never cause any trouble unless the tonsils have been removed. During tonsillectomy the operator may encounter the elongated styloid process when a needle for suturing a blood

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vessel may strike the elongated bone, causing the needle to break, with ensuing difficulty in finding and removing parts of the needle.

The main symptoms of elongated styloid process follow immediately after the tonsillar operation. Patients will claim that their throat never healed properly following tonsillectomy. They will return to their specialist or to their physician, trying to find the cause of their sore throat. Not only do they have sore throat, but, in addition, they complain of pain in the ear and pain on swallowing. Usually one side only is involved, but there are a considerable number of patients where the symptoms are due to bilateral elongated styloid processes. Many patients may have bilateral elongated styloid processes, but only one of these may cause symptoms. Spasm of the constrictor muscles of the esophagus has been found due to an elongated styloid process. The symptoms are due to the tenseness of the mucosa in the pharynx over the elongated styloid process, which involves the stimulation of terminals of the glosso-pharyngeal nerve. The condition is not to be confused with glossopharyngeal neuralgia which is stimulated by heat, cold, or the act of swallowing, and is a lightning-like type of pain.

The diagnosis of elongated styloid process is easily made by palpating the tonsillar fossa. If a bony resistance is met in the fossa, it has to be an elongated styloid process, and the palpating finger is on the tip of the styloid process. The patient winces from pain, and his symptoms of pain in the ear and other local pains are reproduced.

The disease is treated by a shortening of the elongated styloid process. This is accomplished by an incision through the tonsillar fossa, spreading the muscles, exposing the styloid process, clipping the stylo-hyoid ligament—which also sometimes is calcified—and then with a strong rongeur the bone is broken. A clamp should be on the distal portion of the styloid process, for if all the muscles have not been stripped off the process, the muscular pull will draw it out of sight into the muscles, and it may be very difficult to relocate it for removal. The main difficulty with the operation is that working through the mouth restricts the field of vision, instrumentation and palpation.

The results of shortening of the styloid process are phenomenal and uniformly good. Patients who have had nagging or severe symptoms are completely relieved. Convalescence is rapid and easy, since sulfa drug powders are left in the wound and the wound is sutured tightly. Therefore, the operation is not followed by the severe sore throat one sees following tonsillectomy where a large open wound is subject to secondary infection.

It is, therefore, to be remembered that a number of the so-called sore throats following tonsillectomy are not in reality infections at all and that a palpating finger in the tonsillar fossa may reveal the true cause of the symptoms complained of by the patient. Surgery alone to shorten the elongated process can relieve this patient's symptoms.

Secretory Otitis Media: Within the past five years what we must consider an altogether new disease has evolved. Up to 1940 one occasionally saw a patient having a fluid level in the middle ear, or even bubbles of air in the middle ear. The condition in the past was termed "catarrhal otitis media" and the patient was usually treated by eustachian tube catheterizations and inflations, but more often simply by the use of ear drops. Those patients having bubbles in the middle ears were usually those individuals who had a habit of sniffing the nose—that is, forcefully inhaling air through the nose which deflated the middle ears. Eventually the eustachian tubes would open when the patient swallowed and air would rush into the middle ear, churning the fluid into bubbles.

We know that catarrhal otitis media is similar in appearance and symptoms to a disease which we now call "secretory otitis media". We are suspicious, however, that secretory otitis media is caused by a *virus*. Our reason for suspecting a virus disease is that there has been a progressive increase in the frequency of the disease since 1940. For instance, in 1941 we observed only 7 cases, while in 1945 we observed many more than 100 patients with the disease. In this disease a transudate of fluid, very thick and tenacious or viscid, collects in the middle ear, and there is an associated obstruction of the eustachian tube. There is no proved association with head colds or respiratory infections of any type, and neither have we been able to associate it with sulfa-drug therapy or any other factor. We have, however, found the disease to occur more often in the cold months of the year.

Secretory otitis media is characterized by a painless onset of impaired hearing of a muffled type,

that is—an impairment of clarity of hearing as well as acuity—a tinnitus of high pitch, which some patients describe as sounding like telephone wires singing on a winter day. They also have a sensation of fluid shifting in the ear as the head is moved, and they may have marked dizziness.

The diagnosis of this disease is made by the history, which is typical in all cases, and the finding of a normal—or essentially normal—ear drum and observing the fluid in the middle ear. The light cone on the ear drum may be a little dispersed but otherwise normal. The fluid behind the drum may show a definite level, which shifts as the head is moved or turned, acting similarly to the alcohol bead in a carpenter's level. Or one may find the middle ear so completely filled that one gets an opaque appearance behind the drum. The drum is never found to bulge. If the fluid has been present for some time, there may be some retraction of the drum. After seeing several ears containing fluid, one has very little future trouble in diagnosing a middle ear filled with fluid.

When the drum is incised with a sharp knife, there is very little pain experienced—not much more than a hypodermic needle. This is because the normal ear drum is not nearly so painful as the inflamed ear drum. No anesthesia of any type has been found necessary except for children below 6 years of age, and there the general anesthesia is necessary for the aspiration of the fluid. As the myringotomy is performed, the patient hears gurgling noises in the ear and the operator may see the bubbles of air going into the middle ear. No fluid ever exudes from the myringotomy opening, and for this reason it is very necessary to use a small metal aspirator, applying it directly over the incision. The fluid then is aspirated easily, and quite a swishing noise is made as it is aspirated. The fluid is usually very thick and tenacious and is quite similar in appearance and consistency to castor-oil or bees honey. It is never purulent and cultures are negative. There is no discharge from the ear afterward and the myringotomy wound heals immediately. The patient has immediate restoration of the sensation of a normal ear. There are a few individuals where the fluid is so thick and tenacious that a counter incision must be made more anteriorly on the drum so that air may be pulled through the middle ear from the second opening made in order to displace the thick fluid.

The results of myringotomy and aspiration therapy for secretory otitis media are uniformly excellent, although there may be a few patients who have recurrence of the fluid on one or two occasions. There seems to be a trigger-like mechanism whereby the eustachian tube opens spontaneously following myringotomy and aspiration of the fluid. There have been a few patients who have had a more prolonged recurrence of the fluid, but these are the individuals where catheterizations and inflation of the eustachian tube were done. We learned by experience not to use instruments on the eustachian tube in order to obtain the quickest healing.

Most patients have had the disease for only a short period when seen, but there are some patients who apparently have had the disease for a long period of time, even to the extent of marked retraction of the drum occurring and beginning of organization of the discharge in the middle ear. These patients require more myringotomy and aspiration treatments than those of shorter duration. If myringotomy is not performed, there will eventually be a permanent deafness due to what we generally term adhesive otitis media, wherein the drum is bound down by adhesions to the other structures in the middle ear.

This condition is found in children, as well as elderly adults, and the disease is of interest to the pediatrician and the internist, as well as the otologist. It is *necessary* for all physicians to be able to diagnose the disease. It is *very necessary* to incise the drum, and it is *absolutely necessary* to use an aspirator for removal of the fluid in secretory otitis media.

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RECENT DEVELOPMENTS IN GASTRIC SURGERY*

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The greatest advances in gastric surgery in recent years have not been so much along the technical line but in the pre- and post-operative care of the patient and a more careful selection of the time of operation. The use of sulfonamides and penicillin, and the freer use of transfusions and intravenous fluids with early post-operative feedings by means of a transgastric duodenostomy or transgastric jejunostomy (Fig. 1) have done much to lower the mortality and morbidity in gastric surgery.

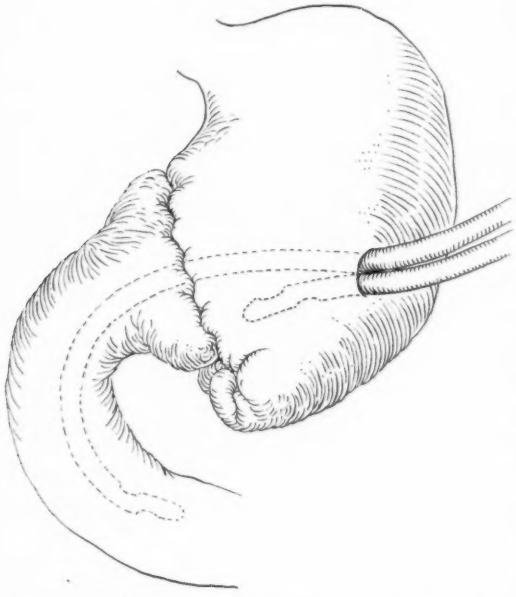

Fig. 1. Drawing showing position of gastrostomy and transgastric duodenostomy tubes at the completion of a partial gastrectomy. The duodenostomy tube is well past the suture line and can be used for feeding on the third or fourth post-operative day.

Gastric lesions requiring surgery may be divided into two types, namely, benign and malignant. Of the benign lesions ulcer and its sequelae are the most frequent reasons for surgery, while cancer is most often the type of malignancy found at operation. Numerous operations for ulcers of the stomach and duodenum have been devised, but on account of the poor results most of these have been abandoned and surgery for uncomplicated duodenal ulcer is almost a thing of the past. All such ulcers, particularly those in young people, should be given medical treatment for several months with repeated x-ray studies to follow the course of the ulcer. Ulcers of the duodenum can be given a much longer trial and unless there is obstruction, hemorrhage, or perforation, operative intervention is usually contraindicated.

Recently Dragstedt[1] and his co-workers have obtained excellent results with bilateral vagotomy, either above or below the diaphragm in the lower part of the esophagus. It is too early to evaluate accurately this work, but in all probability it will be a distinct adjunct in those cases of duodenal ulcers which are resistant to medical treatment or in the recurrent post-operative duodenal or gastrojejunal ulcers.

Resection of the vagus, particularly the gastric portion of the left vagus, has long been practiced at St. Elizabeth's Hospital,[2,3] and we have always considered it a definite aid in persistent types of ulcers. The more radical operations now advised would seem to give better results.

Benign polyps and diverticula of the stomach should be operated upon, particularly diverticula that show retention of barium by gastro-intestinal x-ray studies. It is quite difficult to make a definite diagnosis of a benign growth in the stomach, and in all probability if a polyp is present a partial resection of the stomach or very wide resection of the base of the polyp would be the operation of choice. Diverticula of the stomach are usually found on the lesser curvature near the esophageal gastric junction and are often difficult to locate at the time of operation, even though they appear quite large by x-ray examination. When located, simple excision of the sac, including all of its layers, is necessary for operative cure. In version of the sac with suturing of the serosal and muscularis layers to produce invagination is not advisable, as this will often produce cardiospasm and the patients will not be relieved of their symptoms.

An ulcer of the stomach which does not heal with adequate medical treatment should be explored, and

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on account of the possibility of the ulcer becoming malignant it seems wisest to resect these cases, treating them as if they were malignant. In malignant tumors of the stomach, surgical resection is the only approved treatment. Radiation therapy is of little value in this type of lesion, and when used in the extensive inoperable cases has not seemed to prolong life or relieve symptoms. In fact, many cases seem to be more uncomfortable during the last few months after having received this therapy than those who have not had it.

In the extensive malignancies of the stomach a wide resection gives the only hope for cure, and with the improved technic and pre-and post-operative care total gastrectomy is now done not infrequently with many reports of three and five-year cures. The post-operative feeding in total gastrectomy cases does not seem to be quite the problem that it was considered when this type of operation was first being done. With the various vitamins and concentrated foods these patients can be kept in vitamin, caloric and mineral balance at home and often return to some useful occupation.

Pre-Operative Preparation: When gastric surgery seems indicated, a careful estimate should be made of the patient's physical condition, with an accurate determination of the hemoglobin, blood counts, total plasma protein, and kidney function. Any deficiencies in these should be corrected by blood transfusions, infusions of plasma, or intravenous dextrose and Ringer's solution. As many of these patients have been on a restricted diet, either prescribed or voluntarily imposed, concentrated vitamins should be given for several days. Both the free and combined acidity of the stomach should be determined within a week or ten days before operation and if there is no free hydrochloric acid this should be given with meals. If lavages are necessary, the stomach should be washed out with .2 of 1 per cent hydrochloric acid, and forty-eight hours before operation the patient should be given this solution as drinking water. It has been found by many years' experience that this definitely diminishes the bacterial flora in the stomach where there has been a lack of free hydrochloric acid. When there is gastric retention, frequent gastric lavages should be done so that the size of the stomach will return to normal and the tone of the masculature will improve. In some cases of duodenal or pyloric obstruction food has been found that was taken one or two weeks previously. For several years these patients were given some type of sulfonamides for 36 to 48 hours before operation. It was thought that this would reduce any potential respiratory infection and lower the activity of any bacteria which might be present in the respiratory mucosa and subsequent secretions. Recently penicillin has been substituted for the sulfonamides, and 20,000 units of penicillin are given every three hours for a day or two before operation. Since using penicillin pre-operatively the post-operative respiratory complications have been definitely decreased. Penicillin is also continued post-operatively for four or five days.

Anesthetic: The type of anesthetic to be used is most important in these cases. For the average individual who is not over 60 years of age and when there is no contra-indication, intratracheal ethylene-ether anesthetic is the one of choice. By using this type, a smoother anesthesia may be obtained as it produces less movement of the diaphragm and likewise of the abdominal viscera, and relaxation is afforded with a small amount of ether. If more relaxation is necessary, either local infiltration of the abdominal wall with ½ per cent novocain solution or the intravenous administration of curare may be used. In elderly and poor risk patients the entire procedure is carried out by local infiltration, using ½ per cent novocain in the abdominal wall and also in the retro-peritoneal space. This is supplemented pre-operatively with hypodermic injections of morphine and scopolamine. With an adequate dose of these two substances, elderly patients will often sleep through the operation except during the infiltration of the abdominal wall and will frequently have complete amnesia regarding the operation. The use of intratracheal anesthetic has the additional advantage in that at the completion of the operation the tracheal and bronchial tree can be readily aspirated of all mucus before the intratracheal tube is removed, and not infrequently 10 to 30 c.c. of thick, tenacious mucus is obtained at this time. Without aspiration this mucus would stay in the bronchial tree, as the patient is usually unable to cough it up for at least 24 to 36 hours.

Operation: The types of operation may be divided into three classes: pyloroplasty, gastro-enterostomy, and gastrectomy. In the decade beginning in 1920, pyloroplasties received much favorable

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comment and were frequently done, particularly in those cases with obstruction, or ulcer of the pyloric sphincter or first part of the duodenum. However, in the follow-up of these cases the results have not always been desirable, since there have been a number of recurrences requiring further operative intervention. Regardless of the type of pyloroplasty that was done, approximately the same results were obtained, and now this type of operation is done very rarely. Gastro-enterostomy has also fallen into disrepute as the procedure for gastric and duodenal ulcers, as almost invariably following such an operation in those patients with high acid a gastrojejunal ulcer developed which was a more serious complication than the original lesion, and the treatment of this condition was difficult and unsatisfactory. However, gastro-enterostomies are still worth while and are indicated in certain types of cases. In elderly people with a low acid and pyloric obstruction from old ulcers, a gastro-enterostomy can be done with less trauma and manipulation than a resection, and with good results. Gastro-enterostomy may also be indicated in other obstructive lesions of the duodenum.

Resection of the stomach with removal of the pyloric sphincter and the first few centimeters of the duodenum is the type of gastric operation which gives the best results for both gastric and duodenal ulcers or malignancy of the stomach. If the lesion involves the entire stomach or the greater part of the cardiac end of the stomach, total gastrectomy may be indicated.

It is not the purpose of this paper to discuss the operative technic, but suffice it to say that in our hands a modification[4] of the Billroth I type of operation has given the best results, as this re-establishes the normal continuity of the gastro-intestinal tract, and when it can be carried out satisfactorily the incidence of recurrence of ulcers is definitely less. However, there are certain limitations to this operation, and occasionally the Billroth II type with one of its many modifications may be necessary.

In the post-operative care of these patients it is necessary to keep the stomach empty for several days to prevent distention, and as there is often no tone of the gastric muscles and some swelling of the gastric mucosa at the suture line, frequent lavages are necessary. In 1932 we discontinued gastric lavage with a large hard rubber tube and in its place used a smaller Jutte tube which was inserted in the nostril and left in place until the stomach emptied. While this gave very good results, it often caused irritation of the pharynx and also prevented the patient from coughing, thus producing respiratory complications. In 1938 Dr. J. Shelton Horsley started using a tube gastrostomy[5] which replaced the nasal gastric tube. We found that with the use of the tube gastrostomy the patients were much more comfortable, could be moved more readily in bed, and irritation of the pharynx was prevented. This tube is placed in the anterior wall of the stomach through a stab wound and is brought out to the left of the abdominal incision. It is held in place with two rows of purse string sutures and the stomach is separated from the anterior abdominal wall by a tag of omentum. The tag of omentum prevents permanent adhesions between the gastric and abdominal walls and also prevents leakage of the gastric contents when the tube is removed. In the past three years, in addition to this tube, we have been using a second tube placed through the same stab wound and carried down into the jejunum or duodenum, depending upon the type of anastomosis that has been done. On the third or fourth day this tube is used for feeding. By using the gastrostomy and enterostomy tubes, the patient loses less fluids, and if the stomach does not empty readily, material aspirated from the gastric tube may be injected into the enterostomy tube in addition to the concentrated proteins which are being fed into the lower tube.

In gastric cases, as in all abdominal surgery, we have felt that retention sutures should be used in closing the abdominal wounds. By using through-and-through s.w.g. or zytor sutures we have had no post-operative dehiscence of the wounds.

Post-Operative Treatment: In post-operative treatment penicillin, which was started before operation, is continued for four or five days, or until the temperature and pulse return to normal. The gastrostomy and enterostomy tubes are kept open for the first 48 hours. At the end of the third or fourth day feedings of concentrated proteins are started in the enterostomy tube. These are gradually increased until about 90 c.c. are given every two hours. As a rule, the stomach starts emptying on the fourth to sixth day, but before the stomach

begins emptying, water and clear liquids are started by mouth. Patients are allowed to have small amounts of water immediately after operation and on the second day, tea and ginger ale and clear liquids may be added up to 60 c.c. an hour. This seems to give comfort to the patient, and as the gastrostomy tube is kept open there is no chance of any gastric distention. As soon as the stomach begins emptying, cooked cereals along with malted milk and soft cooked eggs are started. We feel it is important that a diet high in proteins be given, as this reduces the edema of the suture line and hastens the rapidity of the healing process. Fluids are supplemented as necessary by the intravenous

Fig. 2. X-ray of Case 1 showing 90% gastric retention at the end of six hours, resulting from duodenal obstruction caused by scar tissue from chronic duodenal ulcer.

route, and one or two transfusions are usually given post-operatively, the first being given immediately after the patient is returned to his room following operation. Vitamins are continued either intravenously or intramuscularly until the third or fourth post-operative day, at which time they are either added to the enterostomy feedings or given by mouth. These patients are usually up on the twelfth to fourteenth day and are discharged from the hospital from the eighteenth to twenty-first post-operative day.

Four illustrative cases are as follows:

Case 1. Mr. J. L. Mc., age 70 years, gave a history of indigestion over a period of many years. He was first known to have a duodenal ulcer three years before this admission to the hospital, and had been on medical treatment with only partial relief of symptoms. On admission to St. Elizabeth's Hospital in November, 1945, he was definitely underweight and had a mild degree of anemia. X-ray examination showed 90 per cent retention of the gastric contents (Fig. 2). He remained in the hospital for several days on treatment and was given a blood transfusion and frequent gastric lavages. Operation was done five days after admission, using local-ethylene anesthesia, and complete obstruction of the duodenum was found resulting from the scar of an old duodenal ulcer. There was no evidence of malignancy. A posterior gastro-enterostomy was done. The patient made a very satisfactory convalescence and was discharged from the hospital three weeks after operation, at which time he was on a bland diet and his hemoglobin had increased to 78 per cent, r.b.c., 4,000,000. Six months later he reported that he had gained ten pounds in weight and was feeling better than he had felt for several years.

Case 2. Mr. O. L. S., age 64 years, was admitted to St. Elizabeth's Hospital in February, 1946, complaining of indigestion and occasional abdominal distention. He was known to have had an ulcer for twelve years and for the first part of that time his symptoms were satisfactorily controlled with dietary means, but in the last six months his pain and indigestion were almost constant. X-ray examination on hospital admission showed a gross deformity with spasm in the first portion of the duodenum and also numerous diverticula in the descending colon and sigmoid. On February 26, 1946, under ethylene-ether anesthesia, he was operated upon and a large ulcer was found in the first portion of the duodenum (Fig. 3). The crater of the ulcer was 1 cm. in diameter and the ulcer had penetrated into the head of the pancreas. A partial gastrectomy was done, using the Horsley modification of the Billroth I. The patient made a satisfactory convalescence and was discharged from the hospital twenty-one days after operation.

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He has returned to his usual duties and, though he is on a bland diet, he has had no further symptoms.

Case 3. Mr. J. F. W., age 54 years, complained of pain and nervous indigestion for twenty years, which had increased in severity during the past few years before admission to St. Elizabeth's on April 16, 1940. X-ray examination showed an obstructive lesion of the pylorus which was thought to be extensive carcinoma of the stomach in spite of free hydrochloric acid in each specimen of the gastric contents examined. At operation four days later, a hard, indurated lesion was found in the pyloric end of the stomach. There were no enlarged lymph nodes, but a small piece of omentum was adherent to the anterior part of the growth. The Horsley modification of the Billroth I was carried out, resecting about two-thirds of the stomach and the first portion of the duodenum. The specimen showed an indurated area in the pyloric end of the stomach, in the middle of which was a large ulcer 2½ cm. in diameter and 1 cm. deep (Fig. 4). Microscopic examination showed scirrhous carcinoma, grade 3. The patient made an immediate satisfactory convalescence and within eight weeks gained from 182 to 240 pounds, which he said was his usual weight.

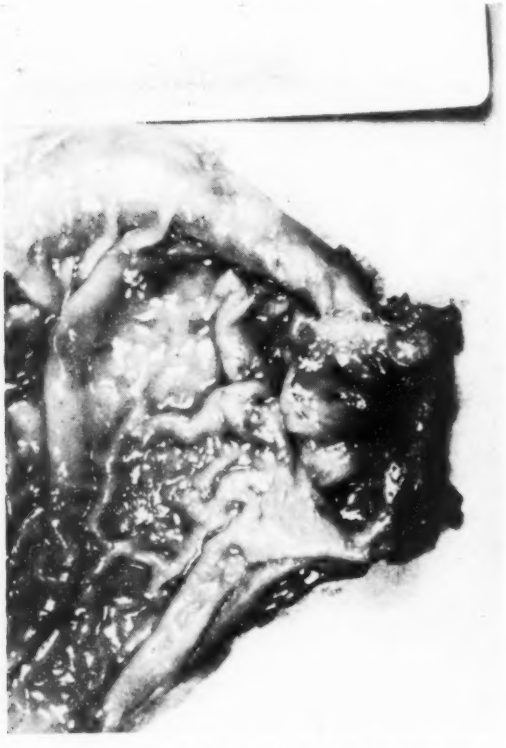

Fig. 3. Photograph of the pyloric end of the stomach and first portion of the duodenum of Case 2, showing ulcer which has penetrated into the head of the pancreas.

Fig. 4. Specimen from Case 3 showing extensive carcinoma of the stomach with portions of the omentum adherent to the lesion. Specimen consists of two-thirds of the stomach and several centimeters of the first portion of the duodenum.

He worked regularly for twenty-one months and at that time noticed a recurrence of his indigestion and loss of weight, but there was an increase in the size of his abdomen. He had alternate spells of constipation and diarrhea, and was re-admitted to St. Elizabeth's Hospital in February, 1942. The

physical examination at that time showed a greatly distended abdomen. A paracentesis was done and 350 c.c. of clear fluid withdrawn. X-ray examination showed partial obstruction of the colon which was thought to be due to recurrence of the malignancy. Exploratory operation done at this time showed numerous metastatic nodules throughout the parietal peritoneum. Microscopic examination of one of the nodes showed grade 3 adenocarcinoma with the same histologic appearance as that found at the original operation. The patient died one month after the last admission to the hospital.

This case shows the necessity of operating upon all ulcers of the stomach which do not become symptom-free after a few months of medical treatment. As mentioned above, this patient had had symptoms for twenty years.

Case 4. Mr. R. J. R., age 67 years, was admitted to St. Elizabeth's Hospital on March 14, 1946, complaining of epigastric pain which had been present at intervals for 12 years. He had been on a special diet most of the time with only partial relief. Two years previously his appendix had been removed without relief of his symptoms. At that time, however, he complained of pain in both legs and feet, particularly in the left leg. Gastro-intestinal x-ray examination showed a large ulcer in the lesser curvature of the stomach which was thought to be extensive carcinoma.

Fig. 5. Photograph showing the entire stomach with a small portion of the esophagus and several centimeters of the duodenum from Case 4. A large indurated mass can be noted in the mid-portion on the lesser curvature near the cardiac end of the stomach.

At operation four days after admission, using intratracheal ethylene-ether anesthesia, there was found a large lesion in the mid-portion of the stomach on the lesser curvature, with the induration extending to within ½ cm. of the esophagus (Fig. 5). A total gastrectomy was done, closing the duodenum, joining the esophagus to the jejunum by an end-to-side anastomosis, and doing an entero-enterostomy on the afferent and efferent loops of bowel. The patient made a very satisfactory convalescence for the first week or ten days and then began complaining of pain in his left leg. In spite of sympathetic injections and the use of papaverin hydrochloride his left foot became gangrenous and three weeks after his original operation an amputation of the left leg in the mid-thigh was done. His convalescence from that time was satisfactory and he was discharged from the hospital three weeks after the second operation. Since then he has been able to be up and around his room, has gained strength and weight, and seems to be feeling quite well.

SUMMARY

1. Recent advances in gastric surgery are reviewed, giving the technic and advantages of gastrostomy and transgastric enterostomy.
2. The pre- and post-operative care of gastric cases is discussed, including the use of sulfonamides, penicillin, and intravenous medications.
3. Four cases are reported, illustrating the different types of operative procedure.

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HEALTH AND VIGOR DEPEND ON THE SOIL*

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The people of this world are gradually starving themselves into one of the greatest wholesale disappearing acts ever recorded in history unless the doctors, chemists, and agronomists wake up to the basic cause of the great increase in so-called mental, physiological and physical diseases. We have definite evidence that deficiency diseases are increasing in both plants and man; but, for some reason unknown in the most scientific nation of the earth, there has not been a general recognition of the cause and source of these deficiencies.

We know when a gas tank on an automobile is empty we can keep the motor running by supplying gasoline in the carburetter with a squirt can, but the common-sense thing to do is replenish the supply of gas in the tank so the motor can feed itself. The deficiency diseases in animals and man are being treated by supplying minerals and vitamins in capsules which is just as ridiculous as the squirt can method of keeping the gas engine running. Doctors and chemists must recognize the basic fact in nutrition that the source of all vitamins, minerals and food is the soil. When the soil is depleted of these minerals, the plants grown on the soil will also be deficient, thereby causing a deficiency to develop in man and animal who live on the soil. There should be a close-working relation between medical science, chemists, agronomists and soil scientists in order to find out more about treatments needed to apply to the soil in order to eliminate the squirt can method of keeping the human engine running smoothly.

The people of this nation have recently become conscious of the great losses of the soil from erosion in terms of material or monetary values. We have also become more conscious of the malnutrition which is so widespread in a nation of plenty. We have not, as yet, recognized the relation of the health and vigor of the people to soil fertility. It will probably require a national disaster to shock us into the realization that poor soils lacking in the basic elements necessary to sustain life have a definite and direct relation to the health and vigor of the people who live on the soil. It has not been recognized that a nation or civilization may be well fed on the basis of quantity of food consumed but at the same time be gradually starving for the lack of certain minerals.

The records of patients in hospitals show an alarming increase in certain sections of deficiencies in thyroid, certain vitamins, nervous disorders, sterility and many other so-called diseases. Is there any proof that these abnormal conditions are not due to deficiencies in certain minerals? Medical science has recognized goiter as being a deficiency of iodine and certain other abnormal conditions are treated by the administration of calcium, phosphates, iron, copper and other minerals. It has not been generally recognized that these deficiencies may be due to a gradual depletion of the soil, and the failure to recognize this is subjecting the people to a process of gradual starvation and results in loss of vigor and poor health.

Since there is ordinarily a sufficient abundance of potassium and magnesium and other plant foods, dietitians and cattle feeders limit their attention to calcium and phosphorus. Of the eight major soil minerals, phosphorus is by far the least abundant. A deficiency of calcium, the most abundant mineral element in the animal body, is associated with the lack of phosphorus. The importance of having an abundant supply of these minerals in the soil is at once apparent when we consider that 95 per cent of the inorganic bone material of animals is composed of calcium phosphate.

Eckles, Gullionson and Palmer[1] in their studies of phosphorus deficiencies in rations of cattle have demonstrated with unmistakable clearness that there is a definite correlation of bone weakness, bone chewing and low phosphate content of the blood plasma, with low phosphate content of the forage upon which the animals feed and with low phos-

*Read before the Staff Meeting of the Radford Community Hospital, Radford, February 13, 1946.

phorus content of soils upon which the crops are grown. Evidences of phosphorus deficiency in forage manifest themselves not only in the most striking symptoms of bone weakness and depraved appetite but also in stunted growth, lessened milk production and lowered capacity for reproduction. Dr. Wm. A. Albrecht, Chairman, Soils Department, University of Missouri,[2] found that male rabbits lost their capacity to become fathers when fed on forage grown on calcium deficient soils. Their litter mates, fed on forage grown on soils with abundant calcium, retained their potency. When feeds of these two lots were interchanged, the situation was reversed. Albrecht states, "Hidden hungers by way of decreasing fertility of the soil may be the quiet force by which species of animal life have become extinct. Nature's warnings allow time for us to heed them against our own extinction if we will look to the soil and conserve its fertility against forces of exhaustion as well as its body against the forces of erosion." He further found that rabbits fed on forage grown on soils low in calcium and phosphorus had enlarged parathyroid glands. This deficiency is recorded in about the same manner as iodine deficiency is recorded in enlarged thyroid glands.

There are many abnormal conditions of plant growth that are due to deficiencies. A few are: sand drown of tobacco and chlorosis of tomatoes due to a deficiency of magnesium; pecan rosette may be prevented by application of relatively infinitesimal quantities of zinc; internal cork of apples, top rot of tobacco, cracked stems of celery, and heart rot of sugar beet can be controlled by the application of boron. The yield of alfalfa will in most all cases be increased and in some cases doubled by the application of 8 to 20 pounds of borax per acre. Every few years a new chemical element is added to the list of those necessary for plant growth. Magnesium boron and zinc were found to be necessary for plant growth for over 20 years before they were generally recognized.

In some cases soil deficiencies are not revealed by any effect on plant growth, yet the plant does not contain sufficient quantity of certain elements for normal growth of animals. For example: "Soils and Men"[3] refers to a failure of cattle to develop normally when feeding on plants grown on soils which do not supply sufficient iron, copper or possibly cobalt. The lack of cobalt causes bush sickness of sheep in New Zealand.

We know that copper and iron are necessary to form hemoglobin of the blood. There is ample evidence that anemia, which is due to the lack of hemoglobin, is rather prevalent and can usually be corrected by supplying iron and copper. What is nature's source of these elements? There is only one answer—The Soil. The deficiencies in man may or may not be due to a lack of these elements in the soil or food but to a deficiency of some other element necessary for proper assimilation of copper and iron by the body.

The birth of hairless pigs has been caused experimentally by feeding brood sows diets low in iodine. Rations carefully freed from manganese produce abnormal lactation. Bone deformities resulting in a condition known as "slip tendon" have been produced in chickens by eliminating manganese from the feed. For more than 75 years the cause of a disease in cattle with symptoms of loss of hair, lameness, liver lesions and edema was not recognized. It has now been found to be due to excess selenium.

Smith and Albrecht[4] found that the increased yield per acre due to the use of fertilizer is not always a true measure of the value in terms of feeding value. It was found that 4.6 pounds of grain were required for each pound of gain for animals fed on lespedeza hay from soil receiving phosphate alone, while those fed on lespedeza hay from soils receiving both phosphate and lime required only 3.34 pounds of grain for each pound of gain. They state that when deficiencies in soils exist, it is possible that some organic compound essential to animal growth might not be produced within the plant and thus result in food of lower nutrition value. The addition of calcium and phosphorus to the diet of animals will not offset the deficiency in the plant. These elements must be synthesized by the plant into compounds which can be utilized by the animal.

Smith and Albrecht[4] make the following statement on the effect of the use of limestone on the quality of wool: "Analysis of wool showed that fleece from the sheep receiving the limed hay contained 2 per cent more fat than those receiving the phosphated hay. When the wools were scoured with a 1 per cent solution of potassium hydroxide, that from the land receiving only phosphated hay was attacked and lost 34 per cent of its weight,

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while the wools from the lambs receiving limed and phosphated hay remained fluffy and lost only 24 per cent. Regardless of the chemical or physical differences in the wools, it is significant that a simple treatment applied to the soil has not only been reflected in increased yield of forage but when fed to sheep has brought about differences in rate of gain and altered the physiology of the animals sufficiently to be observed in the appearance and quality of the wool."

Referring to the increase in nervous disorders, Shield[5] says, "His capacities to withstand trauma —to avoid susceptibility to infection—to survive infection—to evolve through situations—are dependent on his perfection of development. This perfection of development of man is primarily sustained by his food. The quality and quantity of nutriment either help or hinder his development. The maintenance of man's capacity to function is dependent upon several factors, but one that is absolutely indispensable is nourishment. The health of man and consequently, his efficiency, is dependent on his state of nutrition."

The following is a quotation from the speech of The Earl of Portsmouth in a debate in the House of Lords on February 2, 1944: "Positive health, in my opinion, and I believe in that of most of those who have thought deeply upon this question, must begin in the womb and indeed in the womb before conception starts, with the health and vitality of the mother. In that connection, the doctors working in the Peckham Health Center discovered that feeding the families in the center with the ordinary so-called balanced food diet bought from the shop was not enough. The vitamins and so forth in the ordinary analysis of such vegetables as spinach and in such food as milk were not there; the vitality was not there; and they were forced to turn then to their own farms. They were forced to grow the food themselves, so as to get the beginning of positive health in the unborn child. . . . They were forced to use not new methods but the ancient method of returning waste to the soil and creating humus."

In referring to studies on the relation of vitamins in the soil with organic matter in the soil, Shield[5] states, "These findings point to the fact that riboflavin and minerals in the plants may depend upon the humus and mineral content of the soil. Such observations suggest that the quality of the plant is dependent upon the fertility of the soil; thus optimum soil fertility predetermines that the plant will have the potential source from which it can possess optimal food value." He further states, "We in medicine are interested in optimal health and in psychiatry; we are vitally concerned with malnutrition as it affects psychobiology. It is for this reason that we find ourselves today interested in the source of malnutrition—soil, an impoverished soil, as a cause of an impoverished people with psychopathological complaints."

The soil fertility on a farm can be depleted enough in one generation to change it from a profitable farming enterprise and a place of good health to one of low standard of living and poor health. Farms that once provided good crops of red clover and alfalfa 50 years ago have been so depleted of the phosphorus, calcium, potash and boron that today timothy, herds grass and other low mineral requirement crops are grown. Soils that at one time produced good growth of crimson clover as winter grazing for hogs and other livestock in Eastern Virginia are now growing rye, lespedeza and crab grass. Many of our one time blue grass sods are now composed largely of wire grass, herds grass and other low mineral requirement crops. The reason is very evident after comparing the mineral content of these crops as given by Morrison.[6]

	Calcium	*Phosphorus*	*Potash*	*Total*
Alfalfa	1.43	0.21	2.02	3.66
Red clover	1.21	0.18	1.89	3.28
Crimson clover	1.31	0.20	1.86	3.37
Blue grass	0.30	0.22	1.26	1.78
Lespedeza	0.99	0.19	0.84	2.02
Herds grass	---	0.19	1.56	1.75
Rye*	---	---	---	---
Timothy	0.14	0.06	0.56	0.76
Crab grass*	---	---	---	---

*Only trace.

It has been a tendency to shift to crops with lower mineral requirement instead of replacing the minerals in the soil. In most of the experiments conducted by our Experiment Station, the main emphasis is placed on increased bushels per acre or tons per acre without considering the possibility that the new high yielding varieties may be actually lower in total mineral content. According to results given in "Soils and Men," the mineral content of different varieties of wheat, corn and potatoes and other crops grown on the same soil may show as much variation as plants of entirely unrelated species. There were also many results of experiments

given which definitely show that the mineral content of the plant can be definitely increased by the application of minerals in the soil.

Larger crops are being grown on soils with the application of pure salts of nitrogen, phosphorus and potash which tends to cause plants to use up more and more of the other elements in the soil. Early in the development of agricultural science, pure salts were not as widely used which helped to replace some of these minor elements. For example: In early colonial days a fish was placed in each hill of corn, large quantities of fish and guano or bird manure, cotton seed meal, all of which, contain many of the minor elements, were used as fertilizer. A majority of the phosphorus was obtained from compounds containing sulphur and the sources of potash contained magnesium. Today the tendency is toward pure salts as a source of nitrogen, phosphorus and potash. Is it not natural that more and more deficiencies will be found? They are being found in both plants and animals.

The fact that animals will gain more weight on the same quantity of feed grown on soils supplied with limestone and phosphate than with feed grown on soils poor in these elements, even though the difference in the chemical analysis may not be significant, indicates that these two elements must cause the formation of some other compound that is necessary for proper health. It has been shown that wool is of much better quality when produced on good soil, rabbits lose their reproductive power, and many other abnormal conditions in animals are caused or related to deficiencies in lime, phosphate, and in some cases other minor elements.

It has been shown also that the health of man is directly related to nutrition. The fertility of the soil from which he obtains his food will determine the quality of the food or type of nutrition. We also know that many abnormal conditions, both mental and physical, respond to the administration of certain vitamins and minerals. It is also generally recognized that the effectiveness of vitamins may be increased by the use of minerals. There is also evidence which indicates that the vitamins and mineral content of the food are related to the humus content of the soil.

This problem of nutrition is a vital one. It has a direct bearing on our own health, both mental and physical, as well as the children of present and future generations. When our forefathers landed on the shores of Virginia, they found a fertile soil. The food produced from this soil and the sea foods gave them an abundant supply of minerals, vitamins and other things which are needed for proper nutrition. They were bold, courageous, strong both mentally and physically. When the soils of the East were depleted of the basic fertility, "Go West Young Man" became the word of the day. At that time it was thought that the supply of virgin soil was unlimited and there was no need to conserve it. That was true at that time, but changes have taken place that make the conservation of our soils necessary to conserve our own existence. There are no more virgin soils. It has been estimated that there are about 600 million acres of tillable land in the United States. Of this, Bennett[7] estimates that 50,000,000 acres have been entirely ruined; another 50,000,000 acres are almost as serious; 100 million acres still in cultivation have been seriously impoverished, and about 100 million acres more of cultivated land are being depleted of productive soil at an alarming rate.

Morris L. Cook, engineer of the National Resource Board, in a statement before the Senate Committee in 1936, stated, "We have been trying to get water off the land into the big rivers and out of the way. We have got to hold it on the fields, or wherever it falls, and do it quickly, if disastrous floods, dust storms, and other calamities are to be stopped . . . .

"Our country is afflicted with earth disease. . . . as the matter now stands, and with continuance of the manner in which the soil is now being squandered, this country of ours has less than 100 years of virile national existence. If that represents a reasonably accurate statement, it is vastly more significant that we have probably less than 20 years in which to build up the technique, to recruit the fighting personnel, and most difficult of all, to change the attitude of millions of people who hold that ownership of land carries with it the right to mistreat and even destroy their land, regardless of the effect on the total national state."

There is a great need for an awakening on the part of all citizens as to the need for a much more rapid replacement of these life giving elements to our soil as a means of better living. There is a need for a close-working relation among soil scientists, agronomists, doctors, and chemists. The first step would be a research laboratory, composed of doc-

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tors, chemists, agronomists and soil scientists with the main objective to find out the relation between the large increase in deficiency diseases of man and the soil on which the food is produced. The agronomist and soil scientists and the medical profession have made remarkable progress in their respective field; but their work must be correlated and both work to a much higher ideal, that of producing quality foods rather than quantity, and to prevent many of the deficiency diseases through proper diet instead of treating the deficiency after it occurs which is often too late to be effective.

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Emotional Stress Underlying Factor in Chronic Headaches.

The most effective treatment of chronic headaches includes both drug therapy and psychotherapy—the straightening out of the patient's emotional problems, according to three New York doctors writing in the November 2 issue of *The Journal of the American Medical Association.*

The doctors—Arnold P. Friedman, Charles Brenner and H. Houston Merritt—are from the Division of Neuropsychiatry, Montefiore Hospital and the Department of Neurology, College of Physicians and Surgeons, Columbia University.

The great majority of chronic headaches are caused by one of three conditions—migraine, injury or emotional stress. The pain, which is probably produced by a constriction of the blood vessels, is precipitated and made worse by emotional tension and inner conflict.

"It has been our experience," state the doctors, "that a combination of psychotherapy and drug therapy is much more effective than the latter alone in reducing the frequency, duration and severity of any of the three types of headache which we are discussing. Indeed in the majority of these patients medication is chiefly of value in relieving the discomfort of the acute attack, and it is only by reducing the amount of mental stress to which the patient is subjected that the headaches can be reduced in frequency and severity and often rendered easier to control by suitable medication when they do occur."

The authors point out that "the psychologic problems vary greatly from patient to patient. In some they may be largely the result of an unfavorable environmental situation which must be changed for improvement to result. In others the difficulty is primarily in the inner life of the patient, with the result that he cannot adjust adequately even to the usual demands of his daily life. Advice as to mental hygiene, reassurance and the opportunity to ventilate his anxieties and conflicts are psychotherapeutic aids which are within the province of the practitioner and which in favorable cases will result in good psychotherapeutic results. In other cases in which the patient's mental difficulties are more severe or more deeply repressed and hence less accessible to therapeutic influence, it seems best to refer the patient to a specialist."

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TRENCH MOUTH (VINCENT'S INFECTION), SCURVY, AND VITAMIN C*

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I. HISTORY AND CLINICAL DISCUSSION

The first knowledge of the stomatitis now commonly known as "trench mouth" and the fusospirochetes comes from the early discovery of these organisms by Plaut in 1894, and by Vincent in 1896. In 1906 Schaudinn discovered the Treponema pallidum and renewed efforts were put forth to study and isolate the fusospirochetes. During the next ten years little was heard about Vincent's infection. Prior to World War I it was taught that it was one of the rarer diseases of the mouth. Shortly after the outbreak of World War I, epidemics of this disease appeared among the soldiers on the various battle fronts. Colonel Dunham, of the U. S. Army, recorded 6,189 cases himself. With return of the military forces to civilian life, many of these were seen in private practice.

The etiology of trench mouth up to the present has not definitely been determined. This study shows it to be due to a combination of factors. In every case of "trench mouth" are found a group of anaerobic spirochetes, fusiform bacilli, spirilla, and vibriones. The spirochetes are Borrelia vincentii, Treponema buccale, Treponema macrodentium, and Treponema mucosum. The latter two have been shown to be responsible for the putrid odor of Vincent's infection.

There are found two types of the fusiform bacillus—one a long, and the other, a shorter club-shaped rod. In addition to the symbiosis described by the term "fusospirochetal", there are found strep. hemolyticus, strep. viridans, and innumerable bacilli and other cocci.

The spirochetes and spirilla are especially difficult to distinguish by carbol fuchsin smears, and only darkfield examination and biochemical tests in various culture media will serve this purpose.

Nesson[1] states that Koch's postulates have never been fully satisfied. However, Smith[2] mentions Lichtenberg's work and describes how he produced spontaneous fusospirochetal infections in guinea pigs by traumatizing the gums with a sterile scalpel, and observed also the development of fusospirochetal infections in the mouths and throats of children in whom the trauma was incidental to tonsillectomy. Smith outlines the fulfillment of Koch's postulates as follows:

a. The fusospirochetes are constantly present in the lesion.
b. They have been isolated in pure culture.
c. When recombined after isolation and injected into animals, they produce the typical disease.
d. They have been isolated from the experimental lesions.
e. Up to the present the disease has not been produced by any other combinations of organisms.

For an excellent and comprehensive study of animal transmission and pathogenicity, the reader is referred to the work of Rosebury *et al.*[3] who show how harmless fusospirochetal saprophytes may produce the extensive, sloughing, gangrenous and necrotic lesions of mouth, skin, lungs and peritoneum when once they gain a portal of entry.

However, these same organisms are also present in the normal human mouth. I have made smears of 500 normal subjects' gum scrapings and find large numbers of fusospirochetes in all cases. Nesson[1] reports 400 such cases who were clinically free but showed the microscopic picture of trench mouth. The fact that these organisms are normally present in the mouth cannot be used as a valid argument against their pathogenicity, since there are many examples of pathogenic organisms that live as saprophytes in the mouth and nasopharynx.

The leading investigators agree that the streptococci activate the initial lesion and pave the way for the fusospirochetes. When the gangrenous nature of fusospirochetal disease in the mouth and other parts of the body is considered, it is difficult to view the fusospirochetes in any other light than as pathogens. With an environment favorable to their anaerobic growth and a host with "lowered resistance" we have a most favorable background for the development of a case of trench mouth. What this lowered resistance amounts to certainly involves a number of factors. The disease develops in unclean pyorrheic mouths. The pockets have been formed, the calculus and detritus are present and the tone and resistance of the tissues have been reduced. In addition to this local condition, there is usually a lowering of systemic resistance, together with a faulty diet to complete the picture.

*Read before Roanoke Dental Academy, May 3, 1946, and Roanoke Academy of Medicine, May 6, 1946.

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Smith[4] states that guinea pigs living on a well balanced diet have a few fusiform bacilli, vibriones, spirochetes, and cocci in the gingival crevices. Yet, these animals never develop even a mild gingivitis. If the gums of these healthy guinea pigs are inoculated with pus from severe cases of pyorrhea in man, an acute infection is produced, with swelling and even local necrosis. However, the infection is always promptly eradicated and never becomes chronic. If the guinea pigs are fed a diet that will produce chronic scurvy after two to three weeks, the gums become reddened and swollen and the attachment of the gums to the teeth is loosened. The previously harmless fusospirochetes slip into these crevices and find ideal cultural conditions in this anaerobic environment. The clinical picture of pyorrhea develops as Wolbach and Howe[5] have shown. The pus from these gums shows the same symbiosis as in man. When the diet is supplemented by vitamin C in the form of orange or tomato juice, or pure cevitamic acid, there is a reversal of the process, with complete regeneration of the gums.

Keeton[6] has shown that vitamin C is an oxidizing catalyst and a regulator of intercellular cement substance or collagen. Due to a lack of cevitamic acid, anaerobic conditions result and portals of entry following the breakdown of intercellular cement substance develop.

Nesson[1] states that trench mouth is contractible, i.e., it may be gotten from someone already infected. However, this is not necessary as the host may infect himself by failure to observe the primary laws of oral hygiene and proper diet. One attack does not produce an immunity to subsequent attacks. Rosebury[7] has shown that there is only circumstantial evidence that Vincent's infection is a communicable disease and states that its development depends on diet and other factors allowing a portal of entry.

Trench mouth may be found in scurvy, cancer, syphilis, alcoholism, diabetes, metallic poisoning, fatigue, dissipation, colds, blood dyscrasias, faddism in diet, smoking, excessive use of carbonated drinks and chewing gum, from malocclusion or poor dental prosthetics, and in the course of treatment of peptic ulcer on the Sippy regime unless supplements of vitamin C are added as shown by Parks.[8]

It is very communicable if the resistance is low, and may be contracted through kissing, using common towels and drinking cups, soda fountain dishes, lip-sticks and pencils. The most susceptible age is 18 to 30 years.

The local and systemic symptoms and signs of acute trench mouth and scurvy are almost identical, and may be summarized as follows:

A. *Local:*

1. Gingival tissues are red, swollen and painful
2. Grayish white slough on surface of gums
3. Gums tender to the touch
4. Gum surfaces appear raw and bleed easily
5. Sloughing may spread to the cheeks and soft palate
6. Almost always a punched-out appearance of the inter-proximal gingival margins or an edematous hypertrophic congestion of the gingiva
7. There is a metallic taste in the mouth with a marked increase of viscid salivation
8. There is a putrid odor from the mouth
9. The pharynx is injected, and there may be difficulty in swallowing
10. Lesions may be present on the lips or corners of the mouth of an herpetic nature suggestive of syphilis
11. The teeth all ache and may seem loose or have a wooden feeling
12. The submaxillary glands are often tender and swollen.

The spirochetes are most abundant in the zone between necrotic and living tissue, and favor the deeper tissues. Bleeding is due to destruction of the normal squamous epithelium, exposing the minute capillaries and blood vessels and leaving a raw bleeding surface.

B. *Systemic:*

1. Sudden onset
2. Malaise and lassitude
3. General weakening of the body with loss of appetite
4. Gastro-intestinal disturbances: indigestion, vomiting, diarrhea
5. Slightly elevated temperature accompanied by a feverish feeling and acceleration of the pulse
6. Headache, restlessness, insomnia, fatigue.

The treatment of these local and systemic manifestations as set forth by Nesson[1] and Fantus[9] is as follows:

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A. *Local:*

1. Churchill's iodine followed by 10 per cent silver nitrate.
2. Metaphen and the aniline dyes.
3. Chromic acid 8-10 per cent followed by hydrogen peroxide which produces the active trioxide of chromium. In addition, the patient is to use a sodium perborate mouth wash of 1 tsp. to the glass of warm water several times a day. Hydrogen peroxide 1:1 in warm water may be used. When acute stages are over, Nesson uses 1 per cent acriviolet or Tr. Metaphen. The sodium perborate is used for a month and then discontinued, as it is unsuitable for daily use.
4. Neoarsphenamine in 10 per cent glycerine locally.

Lately the use of sulfadiazine powder massaged into the gums and penicillin applied topically (Schuessler *et al*[10]) have been shown to be of definite value.

B. *Systemic:*

1. Catharsis if necessary
2. Two full glasses of orange juice daily; a quart of milk daily, and plenty of raw fruits and vegetables
3. No tobacco, alcohol, or spicy foods
4. Neoarsphenamine 0.3 gm. intravenously at intervals of several days in recalcitrant types
5. Fuadin 5 cc. every three to five days intramuscularly.

Naegeli *et al*[11] have found that penicillin by parenteral route, 20,000 to 30,000 units every 3 hrs., is of striking value.

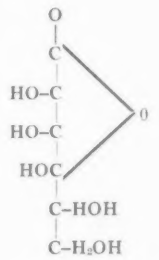
No case can be considered cured until all the predisposing causes have been eliminated. Oral conditions, dental conditions, diet, focal infections, systemic diseases, etc., must be treated as part of a general condition.

Lyons[12] describes cases of subclinical scurvy due to avitaminosis.

C. The gums are exactly as described under trench mouth. There is a gingivitis of some months' standing with gums puffy to the point of losing their stippling. They are slightly glazed or dry and rolled in the interproximal spaces and along the gum margins with a color change to a deep red. There is only a small amount of tartar formation or none at all, indicating that the local irritation is not a factor in the gingivitis.

II. The Chemistry of Vitamin C and Technique for Quantitative Determination

A most illuminating discussion of the identification, isolation, and synthesis of vitamin C is given by Zilva.[13] A few years ago vitamin C seemed to be the most unstable and elusive of the vitamins. In 1928 Szent-Gyorgyi isolated hexuronic acid ($C_6 H_8 O_6$) from cabbage, orange juice, and adrenal cortex. In 1932 King and Waugh announced that they had isolated crystalline vitamin C. This was followed a few months later by Haworth's description of the chemical structure of this vitamin. Its synthesis in the laboratory by Ault, Reichstein, and others was announced the following year. It was noted at once that crystalline vitamin C, first called ascorbic acid but later renamed cevitamic acid, seemed to be identical with hexuronic acid first discovered by Szent-Gyorgyi. This fact was established by Svirbely and Szent-Gyorgyi shortly after King and Waugh's announcement. Cevitamic acid is an odorless, white crystalline powder, freely soluble in water, oxidizes on exposure to air and light, and is a strong reducing agent, reducing Fehling's solution without heating. It is found in citrous fruits, adrenal cortex, adrenal medulla, paprika, green pepper, gladiolus, iris, parsley, water cress, and innumerable other sources. Its chemical formula is accepted to be:



A method for chemical determination of vitamin C which is comparable to the biological assay method on guinea pigs was described by Tillmans *et al.*[14] using 2:6 dichlorphenolindophenol. This is a blue dye and is very accurate in determination when titrated against vitamin C. The reaction given in Hawk and Bergheim's text[15] is as follows:

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$C_6H_8O_6$	+	$O:C_6H_2Cl_2:N.C_6H_4OH$	=	$C_6H_6O_6$	+	$HO.C_6H_2Cl_2.NH.C_6H_4OH$
cevitamic acid		2:6dichlorphenol-indophenol blue		dehydro-cevitamic acid		2:6dichlorphenolindophenol leucobase-colorless

Van Eekelen,[16] Emmerie and Van Eekelen,[17] and Birch *et al.*[18] have made valuable contributions in perfecting the method of determination of vitamin C in urine, blood, and various animal and plant tissues. Hess and Benjamin[19] found that urine and blood contains only traces of glutathione and sulphydryl groups, and, therefore, any reducing substance titrated against the indicator is considered to be cevitamic acid.

For most accurate results on urine, a 24-hour sample should be taken in about one-tenth volume of glacial acetic acid. If the specimen should become alkaline, the glutathione in the urine would react with the indicator and results would be unreliable. Cysteine and various phenolic compounds will reduce the indicator in acid solution and therefore must be removed, as suggested by Emmerie. A 20 per cent mercuric acetate solution should be made up in water, allowed to stand 24 hours and filtered before use. It should never be used longer than three weeks. 100 cc. of urine from the 24-hour specimen in glacial acetic acid is taken and neutralized with calcium carbonate until alkaline to Congo red paper. Then 20 per cent mercuric acetate is added drop by drop until a creamy white precipitate is complete. Too much mercuric acetate should be avoided. If one is uncertain as to whether all the glutathione has been removed, a sample should be tested with potassium nitroprusside in the presence of ammonia. If present, a purplish color will develop. The precipitate is allowed to settle, and the supernatant fluid is decanted off and filtered. A 20 cc. portion of the filtrate is measured into a beaker and acidified with 2 cc. of glacial acetic acid. This is titrated with a standardized solution of indophenol from a burette. It is necessary to use a composite 24-hour specimen because the vitamin excretion varies throughout the day, rising rapidly after a meal, showing up within one hour, reaching a peak in three hours, and gradually returning to normal.

In titrating, the end point is rather difficult to reach by adding the indophenol to the vitamin-containing fluid. The color of the indicator is discharged until all the cevitamic acid is dissipated, which is indicated by the reappearance of the color. As the titration is carried out in an acetic or trichloroacetic acid medium, it should be noted that in such acid medium the non-reduced indicator shows a pink color while in neutral solution the color is blue.

As stated above, the titration to a pink color in yellow tinted untreated urine is difficult. For this reason, Ahmad[20] suggests adding the vitamin-containing fluid to the indicator, which gives a very much better end point. I have found that the specimens should be kept on ice for most accurate results.

The foregoing methods have been found much more practical and rapid and just as accurate as the more prolonged and laborious biological assay of vitamin C containing fluids as applied to guinea pigs as shown by Bessey and King[21] and Guerrant *et al.*[22] Guerrant's table on the cevitamic acid content of various juices is very interesting.

Juice	Vitamin C in mg. per cc.	Juice	Vitamin C in mg. per cc.
Lemon fresh	.455	Peach fresh	.018
Orange fresh	.500	Plum fresh	.030
Orange canned	.294	Rhubarb fresh	.278
Tangerine fresh	.208	Sauerkraut canned	.082
Lime fresh	.459	Cabbage fresh	.427
Grapefruit fresh	.266	Peppers fresh	.203
Grapefruit canned	.150	Carrots fresh	.040
Pineapple fresh	.310	Celery fresh	.009
Pineapple canned	.070	Turnip fresh	.191
Tomato fresh	.157	Cucumber fresh	.012
Tomato canned	.242	Potato fresh	.021

Besides the chemical and biological assays capillary fragility tests have been described as a rough method of estimating vitamin C deficiency. Wright and Lillienfeld[23] have outlined a method as follows: Make a circle 2.5 cm. in diameter at a distance 4 cm. from the crease of the elbow. A blood pressure cuff is applied and the pressure kept for 15 minutes halfway between systole and diastole. The number of petechiae is counted.

Normal	10 or less
Borderline	10 to 20
Abnormal	20 or more

Van Eekelen[24] states that in general, there is a linear correlation between the urinary excretion level and the blood ascorbic acid. With the development

of a vitamin C deficiency the amounts of cevitamic acid in blood and urine decrease. This agrees with the findings of Taylor *et al.*[25] and Abt *et al.*[26] It is possible to get an insight into the state of vitamin C saturation of a given subject by blood and urine determination. These authors found average normal values of 1.61 mg./100 cc. of blood with a renal threshold excretion level at 1.4 mg./100 cc. In scurvy the blood vitamin may reach such low levels as 0.245 mg. Even with a high vitamin intake in severe infections the blood vitamin C rarely gets to be over 0.15 to 0.25 mg.

Finkle[27] and Harris[28] have found the normal 24-hour output of cevitamic acid to be 13-33 mg. In scurvy or in trench mouth the urinary vitamin may drop to almost zero in the case of scurvy, and to such low values as 3.56 mg. per 24 hours as shown by Lyons.[12]

Johnson and Zilva[29] have shown that the urinary excretion of cevitamic acid under normal conditions of existence is variable and that this output is due to two factors: (a) the remote intake and storage in the body, and (2) the immediate vitamin intake. When the store of cevitamic acid is complete, a more or less constant level of urinary excretion can be achieved, and this level varies with the magnitude of the daily quantity ingested. The percentage of ingested cevitamic acid in the urine is lower when high doses are taken than when the doses are low. The actual amount of cevitamic acid in the urine not accounted for is very much higher in the first case than in the second, and is evidently not indicative of the real vitamin requirements of the individual. No dehydroascorbic acid is found in the urine when the doses are high; therefore, this cannot account for the discrepancy. The only other assumption which is tenable is that the excess cevitamic acid is stored in the body. On discontinuing the intake of cevitamic acid, a subject who is "saturated" may yet remain in this condition for some time despite the fact that his urinary excretion drops to a very low level. When a subject is "saturated", or approaching "saturation", and a dose of cevitamic acid is taken, the rate of urinary excretion rapidly rises to a maximum in about 4 hours, and then gradually returns to the initial rate in about 24 hours. Diuresis induced by excessive intake of water does not influence either the rate or level of urinary output of the cevitamic acid. The rate of urinary excretion of cevitamic acid is low during the night and increases soon after rising. When dehydroascorbic acid is ingested it appears in the urine as ascorbic acid (cevitamic acid). It is possible to exist on diets containing sufficient vitamin C to insure good health and freedom from scurvy or trench mouth even when the store of the vitamin in the body is low.

Abbasy *et al.*,[30] Harris and Ray[31] and Finkle[27] have devised diagnostic tests based on the principle that in individuals whose bodies have stored a reserve supply of vitamin C, the administration of a large test dose will lead to a sudden increased excretion, far above normal; whereas, in cases of deficiency, the vitamin is retained and an increase in excretion is noted only after several test doses. The diagnostic test may be carried out by the use of fruit juices high in vitamin C, or by use of 600 mg. of cevitamic acid orally for adults and 100 mg. orally for infants. 100 mg. intravenously may be used in adults. A 24-hour specimen taken in one-tenth volume of glacial acetic acid may be used. However, immediate titrations are more accurate. In this way latent scurvy may be determined. The test is applicable to certain cases of trench mouth also.

Cevitamic acid can be used in pure form by some patients who are hypersensitive to tomato juice or citrous fruit juices.

It is interesting to note that as large doses as 1,000-2,000 mg. of cevitamic acid may be injected intravenously without untoward effects. The vitamin may be injected subcutaneously in 20-30 mg. quantities by dissolving this amount in sterile water and neutralizing with one-half its quantity of sodium bicarbonate to pH 7.0.

One mg. of cevitamic acid is equal to 20 international units. The reputed minimal daily requirement of the vitamin is given as 1,000 international units or 50 mg. This is obtained by ingesting 100 cc. of fresh orange juice as will be readily seen by reference to the table by Guerrant in a previous portion of this paper.

Wood[32] states that there is no evidence that human beings can synthesize cevitamic acid in their bodies. In this respect the guinea pig is identical and makes an ideal experimental animal for biological assay and other tests. The rat is able to synthesize the vitamin, and, is therefore not suitable for experimental studies.

For many years there has been more than just a

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casual intimation that pyorrhea and unhygienic oral conditions are often associated with peptic ulcer. Smith[33] in an excellent paper points out that peptic ulcer in the guinea pig, at least, is apparently caused by a prolonged partial deficiency of vitamin C. It requires not too great a stretch of the imagination to conservatively hypothecate that the oral condition and the ulcer may have a fundamentally identical etiological setup as part of a larger clinical and pathological picture than either alone.

III. Clinical and Laboratory Data

I have used the 2:6 dichlorphenolindophenal indicator as marketed by the Hoffman-LaRoche Drug Company. One tablet dissolved in a 50 cc. volumetric flask gives a solution, one cc. of which is equivalent to 0.02 mg. cevitamic acid. To test the accuracy of the method, I tested a 25 mg. tablet of pure cevitamic acid and on two titrations recorded values of 24.8 mg. and 25.2 mg., respectively. The average is 25.0 mg., which indicates that the method is surprisingly accurate.

Using 24-hour specimens of urine collected in one-tenth volume of glacial acetic acid, and titrating a 10 cc. sample of the specimen against the indicator solution described above, I have obtained some data which may be of interest.

Although these cases are few in number, it can readily be seen that the vitamin C output in the group of normal subjects showed higher excretion levels than those with bleeding gums. It is also evident that ingestion of vitamin C served to increase the urinary output of vitamin C and in these cases was instrumental in improving the condition of the gums, since no other treatment was used.

IV. Summary

1. The fusospirochetes are present in normal mouths as well as in trench mouth, so that a positive gingival smear alone is not sufficient evidence for making a diagnosis of trench mouth.

2. If the vitamin C excretion in a 24-hour urine specimen is less than 13 mg., then a positive gingival smear is of utmost diagnostic significance.

3. Due to deficient vitamin C an anaerobic state is created in the tissues and at the same time intercellular cement substance breaks down, allowing a portal of entry of otherwise harmless saprophytes into an ideal medium where they become pathogenic.

4. A technique for rapid determination of vitamin C levels in body fluids is presented.

5. Cases of trench mouth on low vitamin C diets are shown to improve with no other treatment than large doses of vitamin C.

Table No. I
A Group of Normal Subjects

	Daily Diet Vit. C	*Smears*	*Gums*	*Vit. C Urinary mg. per 24 hrs.*
1. J.F.	2 oranges	few spirochetes few fusiform bacilli	firm no bleeding	13.2 mg.
2. E.S.	½ grapefruit or 1 orange	few spirochetes many fusiform bacilli	firm no bleeding	16.2 mg.
3. R.S.	1 limeade ½ grapefruit	no spirochetes occ. fusiform bacillus	firm no bleeding	17.0 mg.
4. N.W.	1 orange or 1 glass tomato juice	occ. spirochete rare fusiform bacillus	firm no bleeding	18.0 mg.
5. O.H.	1 orange	occ. fusiform bacillus occ. spirochete	firm no bleeding	19.8 mg.
6. R.J.	1 orange or glass tomato juice	few fusiform bacilli few spirochetes	firm no bleeding	20.4 mg.
7. I.B.	½ grapefruit and 1 glass tomato juice daily	occ. fusiform bacillus no spirochetes	firm no bleeding	56.3 mg.
8. D.H.	½ grapefruit 1 glass tomato juice	many fusiform bacilli many spirochetes	firm no bleeding tendency to recede	66.8 mg.

TABLE No. II

A Group of Subjects With Trench Mouth

	Daily Diet Vit. C	*Smears*	*Gums*	*Vit. C Urinary mg. per 24 hrs.*
W.S.	very occ. orange	few fusiform bacilli	red and swollen bleed easily	11.3 mg.
W.S.	150 mg. cevitamic acid daily for 10 days	same	no swelling no bleeding normal color	18.2 mg.
C.W.	very occ. orange or grapefruit	few fusiform bacilli few spirochetes	bleed easily spongy and red	12.35 mg.
C.W.	200 mg. cevitamic acid daily for 10 days	same	normal firm no bleeding	26.4 mg.
L.F.	no citrous fruits	many fusiform bacilli few spirochetes	spongy rolled in interproximal margins bleed easily	13.2 mg.
L.F.	3 weeks 2 oranges daily for	same	no bleeding firm	33.0 mg.
R.O.	occ. orange	many fusiform bacilli occ. spirochete	tender receding bleed easily	10.3 mg.
R.O.	3 oranges daily for 10 days	same	firm no bleeding	65.7 mg.

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XUM

INTERPRETATION OF QUALITATIVE AND QUANTITATIVE SEROLOGIC REPORTS

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and
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Richmond, Virginia.

The laboratory of the Virginia Health Department employs the Kolmer Complement Fixation test and three flocculation test procedures (Mazzini, Eagle and Kahn) in the serodiagnosis of syphilis. The function of the above tests, performed qualitatively, is to aid the physician in establishing a diagnosis. The same procedures may also be employed quantitatively with syphilitic serum from treated cases in determining increase or decrease in reagin. The various flocculation tests have no fundamental differences. Variances of the tests are due to the adjustment of the antigens which control the sensitivity and specificity of the reaction. Syphilitic reagin, a substance which is present in the blood as a result of syphilitic infection, is presumably responsible for a positive serologic reaction. The presence or absence of this reagin is determined by one or more qualitative serodiagnostic tests.

Qualitative tests are conducted with a single amount of blood serum or spinal fluid. A 4+ or strongly positive reaction is considered diagnostic. If a plus-minus, one plus, two plus, or doubtful reaction (depending on the terminology of the author serologist whose test is being performed) is obtained, the result should be regarded as weakly positive provided the clinical history of the patient excludes infection of malaria, yaws, infectious mononucleosis, vaccinia, etc. The futility of this entire scheme of classifying results has been much discussed and can be illustrated by the following simple experiment, illustrated in "The Laboratory Diagnosis of Syphilis" by Dr. Harry Eagle, Johns Hopkins University School of Medicine. "If a serum of a patient with secondary syphilis is serially diluted twofold in each of a series of tubes (1, 1:2, 1:4, 1:8, 1:16, 1:32, etc.) and each dilution tested by a sensitive Wassermann or flocculation technic, it is found that the serum continues to give a 'completely' or 'strongly' positive reaction up to a 1:32, 1:128 or even 1:500 dilution. Obviously, the original serum contained thirty, one hundred or even five hundred times the amount of reagin necessary to give a 'completely' positive result. The term 4+, far from implying a 'strong' positive reaction, thus applies to any serum containing enough reagin to prevent hemolysis entirely, or cause definite aggregation, whether that serum contains one or one hundred times this minimal reactive quantity. The terms 1+, 2+, 3+, upon which so much stress has been laid as a measure of the degree of positivity, actually cover less than one-hundredth of the total observed variation and apply only to sera which contain barely detectable quantities of reagin."

A weak reaction reported from the State Health Department Laboratory on a "doubtful" form could be due to a limited quantity of reagin in the blood in early syphilis, or to a reduction in titer that might occur as a result of treatment. In this respect the term "doubtful" is erroneous, but since actual readings are not given the clinician he should not regard the report lightly. A positive qualitative test is no indication of the degree to which it is positive. The report form using the term, negative, positive and doubtful are interpreted as follows: If the result is clearly *negative* (complete hemolysis in the Wassermann; no aggregation in the flocculation test) or clearly *positive* (no hemolysis; definite and unmistakable aggregation), the specimen is reported as simply *negative* or *positive*. Specimens reported as doubtful include Wassermann tests showing incomplete hemolysis and flocculation tests yielding irregular aggregation. All specimens reported as doubtful should be repeated. On new cases repeated doubtful serologic reports should cause the physician to take a careful history, and in the absence of a history and signs of syphilis and with a negative spinal fluid the physician should carefully evaluate the case before placing the individual under treatment.

In treated cases, the physician should use quantitative serologic tests in evaluating his case. Quantitative tests are conducted to determine the amount of reagin present or the reagin titer. The titer of the serum is determined by making serial dilutions

of serum with saline or diminishing quantities of undiluted serum. A given serum may have just enough reagin to react to a positive degree (4+) undiluted only, or its reagin content may be sufficient to yield a positive reaction in a dilution containing one part of serum and 255 parts of saline, producing a titer of 1:256. It is obvious that quantitative procedures are the only means of detecting degrees of serologic improvement in relation to treatment and serve as an index to the efficacy of the prescribed therapy.

The quantitative serum test is not an aid to diagnosis. We quote from "The Laboratory Diagnosis of Syphilis"—first edition—by Eagle (page 321)—"The routine qualitative test with the maximum safe quantity of serum is just as sensitive; and the quantitative reaction, beginning with that quantity, merely determines the maximum dilution in which the result is still positive. A patient whose serum is positive up to a 1:10 dilution (reagin titer of 10) is no less syphilitic than the patient whose serum is positive up to a 1:800 dilution. Although certain clinical conditions are *generally* associated with a high titer and others with a *generally* low titer (Schwartz), the individual variations are so pronounced as to make the actual titer of no diagnostic significance in the particular case. It is not yet known whether the reagin titer has any prognostic significance; such meager information as is available suggests that it does not. The chief value of the quantitative serum test, whether Wassermann or flocculation, lies in the fact that it enables the physician to evaluate the serologic response from the very beginning of treatment, a factor to which the routine test offers no clue. The character and extent of the quantitative serologic response may ultimately prove to be of prognostic importance (Vedder, 1929)."

"In the spinal fluid, however, the quantitative test with graded quantities of fluid has proved of such definite diagnostic and prognostic significance that it has been regularly adopted as a routine procedure. Remembering that there are always exceptions, it is in general true that the intensity of the cellular protein, and Wassermann reactions in the spinal fluid parallel the degree of central nervous system involvement; and the study of Moore and Hopkins indicates clearly that even in asymptomatic neurosyphilis, the ultimate prognosis of the patient varies directly with the cell, protein, and reagin content of the spinal fluid. In addition, the fall in reagin titer is a valuable and sometimes the only clue to the success of the therapeutic regime."

The importance of the quantitive serodiagnostic test cannot be over-emphasized at this time. It is an essential procedure in the post-treatment evaluations of the penicillin treated individual. Penicillin treated syphilis should be followed up with a quantitative serologic test at monthly intervals for the first post-treatment year; at three-month intervals for the second year, and every six months for the third, fourth and fifth years. Rise in titer may not only indicate serologic relapse, but clinical relapse to infecticusness. Thus, all individuals whose sera evidences a sharp rise in titer should be carefully examined for mucocutaneous relapse lesions.

The Laboratory of the State Department of Health offers quantitative serodiagnostic tests upon request.

XUM

THE FORUM

Out-Patient and Hospital Care for Veterans.

The following information concerning out-patient and hospitalization benefits of the Veterans Administration is disseminated in the interest of clarifying for veterans, civilian physicians, and other persons concerned the procedures relative to these benefits.

Among the many functions of the Veterans Administration in administering the benefits provided by law to veterans and their dependents is out-patient medical care and hospitalization.

In general, the Veterans Administration furnishes complete medical care and treatment, either on an out-patient basis or by hospitalization, to all veterans with service-connected disabilities or disabilities aggravated by service. Veterans with nonservice-connected ailments are not entitled to out-patient treatment but may receive hospitalization if unable to pay for medical care elsewhere and if there is a vacancy in a VA hospital not required for a service-connected case. The statement of the veteran of his inability to pay is accepted by the Veterans Administration.

In order to be eligible for out-patient treatment at VA hospitals and clinics or to receive civilian medical treatment at VA expense, the veteran must meet the following conditions:

1. Veteran must have had active service in the armed forces of the United States or its allies and must have received a discharge under conditions other than dishonorable.

2. Veteran must have a disability or disease which is known to have been incurred in or aggravated by service in the armed forces of the United States.

Prior authorization of the Veterans Administration for any type of medical treatment by civilian doctors is generally required, and this authorization can be obtained by contacting the Veterans Administration Regional office in Roanoke.

Should the case in question be emergent and prompt treatment is required, the physician may render such treatment and thereupon complete a request form for authority for treatment and send it to the VA Regional office, and in no case later than 15 days after treatment is begun. Authority for this medical treatment will be forwarded to the physician from the Veterans Administration just as soon as eligibility has been established and this will constitute the physician's authority to give treatment and receive payments under the VA's regulated scale for the medical treatment rendered. If it develops that the emergency arose from a nonservice-connected disability then the Veterans Administration will not be responsible for treatments given after it is determined that the veteran is suffering from a nonservice-connected disability.

In addition to out-patient treatment provided service-connected cases at VA hospitals and clinics, physicians have been designated by the VA to provide this treatment in communities throughout the State which are distant from VA out-patient treatment facilities.

In the case of hospitalization of a veteran, the basic requirements are the same as those shown above. However, in emergent cases, hospitalization may be effected in civilian hospitals for service-connected disabilities subject to the following conditions:

1. Prior authority of the VA to hospitalization is generally required. If a veteran is eligible, this may be obtained by collect telephone call, telegram or letter to the Chief Medical Officer of the VA Regional office in Roanoke.

2. When the case is highly emergent, and it is impracticable to obtain prior approval, the veteran may be hospitalized and the Chief Medical officer of the VA Regional office subsequently notified. This notification must reach the Veterans Administration Regional office within 72 hours from the time of such hospitalization, and strict compliance with this requirement is necessary for payment of an account.

In order that veterans may be hospitalized in civilian hospitals, it is required that the hospital furnish the following information concerning the hospitalized veteran:

Full name, enlistment and discharge dates, present address, name and address of hospital, date of admission to hospital, nature of condition requiring treatment, if ambulance is necessary give name of ambulance company and estimated cost, if attendant is necessary give name and relationship to the patient.

If emergent and service-connected and it is desired to hospitalize the veteran in a civilian hos-

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pital, the Chief Medical Officer of the VA Regional office in Roanoke should be contacted. Non-emergent and elective surgical and medical procedures will not be authorized prior to the establishment of service-connection.

A few general rules to follow for medical treatment and hospitalization for the veteran at the expense of the VA are as follows:

1. Veteran may be cared for at VA hospital outpatient departments for service-connected disabilities.
2. Veteran may be cared for by civilian physician for service-connected disabilities.
3. Veteran may be hospitalized in VA hospitals for both service-connected and nonservice-connected disabilities, the latter only if facilities are available and the veteran is unable to pay for medical care elsewhere.
4. Veteran may be hospitalized in civilian hospitals for emergent treatment of service-connected disabilities when the case is highly emergent and there are no VA facilities feasibly available, transportation to a VA hospital would be hazardous, and it is impracticable to obtain prior approval.
5. Female veterans may be hospitalized in civilian hospitals in emergencies on authorization by the VA for nonservice-connected disabilities but not for pregnancy.

Full information and assistance concerning outpatient treatment and hospitalization are available at the nearest VA office or through the Chief Medical Officer at the Roanoke Regional office.

Dr. Renn Resigns from De Paul Hospital Staff.

Dr. George A. Renn recently tendered his resignation from the Clinical Staff of De Paul Hospital, Norfolk. His reason for resigning was that he felt that he had approached the "Twilight of Life" and from now on he wished to take everything a little easier.

We know that as the twilight of day approaches, and the cool of the evening re-invigorates us after the toil of a hard day's work, there is real pleasure relaxing in quiet solitude or enjoying the comradeship of relatives and loyal friends. To spend many such happy hours, I am sure is the thought which has caused our friend to wish to be relieved of the arduous duties he has performed for nearly fifty years.

The Staff of De Paul Hospital accepted his resignation with regret, but with a knowledge and appreciation of his long and faithful service with the old St. Vincent's and recently with De Paul Hospital. After accepting his resignation from the active Staff, he was unanimously elected to the Honorary Staff.

With the election of Dr. Renn to the Honorary Staff, we know that it is a very small gesture of our appreciation for the service he has rendered to those who have been able to remunerate him financially as well as the poor.

Words and money are not adequate remuneration, but as he said to me "the pleasure and satisfaction I have obtained from my life's work is reward enough."

Your Chairman of this Committee has had the pleasure of visiting Medical Clinics with Dr. Renn. His enthusiasm at the nice age of eighty-one is an inspiration to the younger men of our profession. This Committee knows that it voices the sentiment of the entire Staff in expressing our love and admiration for our esteemed friend and colleague for his forty-five years of service.

Our sincere and earnest wish for Dr. Renn is that he will be with us many, many years, and his presence will always be an inspiration in the future as it has in the past.

A. A. BURKE, *Chairman*,
M. S. ANDREWS,
J. WARREN WHITE.

Charley Horse Not a Muscle Cramp.

A Charley horse, the bane of baseball players and other athletes, is not a muscle cramp, but an injury to a muscle, according to the November 30 issue of *The Journal of the American Medical Association.*

A Charley horse or muscle injury and a cramp are of entirely different pathologic origins, the article says, adding that massaging is not advisable for a Charley horse, but is advisable for a cramp.

In discussing treatment, the article gives this advice: "In the acute stage at the onset of a Charley horse the leg should be packed in ice about the injured area and held quiet for half an hour to an hour. In the acute stage subsequently for about six weeks (a) the leg should be placed at rest in a cast or splint and kept quiet for 10 days, the patient continuing to wear the cast for six weeks; (b) diathermy, long wave treatments, should be given daily; (c) heat or contrast baths should be given; gentle motion should be given every few days to prevent stiffness."

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PRENATAL CLINIC SERVICE

COMMITTEE ON MATERNAL HEALTH,
MEDICAL SOCIETY OF VIRGINIA

Beginning with six existing established prenatal clinics in 1936 an effort was made to establish similar facilities for indigent maternity patients throughout the State.

The approval for such a project was first obtained from the Medical Society of Virginia. The approval of the local medical society has been secured preliminary to inauguration of this service in any local area. Local physicians serve as part-time clinicians. Quarters, equipment and nursing personnel are made available through health departments. Quality of work is emphasized rather than quantity of patients.

The physicians participating in this activity have manifested a continuing interest which was maintained during the stress of the war years. The medical service to indigent clinic patients has been of benefit to them but a greater value may have resulted through the educational features accompanying these activities. Each clinic continues to be a practical demonstration to the community of the need for and advantages of medical supervision. Some physicians find that the clinics serve a useful purpose in rendering prenatal care to part-pay or semi-indigent patients referred by them for this service. Midwives are encouraged to attend clinics with their patients in order that cases with potential pathology may be "screened out" and medical care arranged.

If complications arise hospitalization may be secured upon referral by the attending physician. Comment relative to the Maternal and Child Health Hospitalization Plan is made in an editorial in this issue of the JOURNAL.

There has been a consistent reduction in the maternal mortality rate in Virginia during the past ten years. The prenatal clinic service is accepted as one of the many factors contributing to this decrease. During the past year there were 66,362 births recorded in Virginia; 7,207 or 10.8 per cent of these patients were given prenatal care in the 96 clinics. The committee recognizes the advantages of the prenatal clinic service for all geographic areas of the State and hopes that facilities may be established in those localities not now included.

Better Medical Training Responsible for Drop in War Mortality Rate.

The mortality rate from wounds among the combatant forces of the United States Army in World War II was less than 3 per cent, or well under one-half of that in World War I, variously estimated from 7 to 10 per cent.

"These truly remarkable results," says an editorial in *The Journal of the American Medical Association,* "are usually attributed to recent scientific advances, such as the antibiotics ("miracle drugs"), blood banks, blood transfusions and blood substitutes—plasma or serum albumin—and the use of new narcotics and anesthetics.

The credit should actually be given to factors which made these discoveries and their application possible, namely, the gradual growth of medical knowledge and expertness; largely unnoticed and unheralded.

"What is little appreciated is that the medical progress accomplished by American medicine in the interim between the two world wars is to a great extent due to standardization of medical schools by the American Medical Association and the standardization of hospitals by the American Medical Association and the American College of Surgeons, resulting in the highest type of training for medical students and interns."

The editorial points out that there were relatively few men of pre-eminent ability in surgery and its specialties in the former war, whereas there were at the beginning of this war literally thousands of well trained, capable surgeons in this country, many of whom were already members of the reserve corps of the Army and Navy.

PUBLIC HEALTH

L. J. ROPER, M.D.,
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for November 1946, as compared with the same month in 1945, and for the period of January through November, 1946, compared with the same period in 1945, follows:

	Nov. 1946	Nov. 1945	Jan.-Nov. 1946	Jan.-Nov. 1945
Typhoid and Paratyphoid	13	10	116	162
Diarrhea and Dysentery	109	178	2,560	6,990
Measles	270	107	13,216	1,387
Scarlet Fever	169	498	2,531	3,790
Diphtheria	84	126	501	479
Poliomyelitis	29	8	131	329
Meningitis	4	3	192	205
Undulant Fever	8	0	61	30
Rocky Mountain Spotted Fever	1	5	92	98
Tularemia	5	1	57	41

REPORTING COMMUNICABLE DISEASES

The policy of the state and local health departments has always been one of full cooperation with the medical profession. The doctors of Virginia in turn have rendered a high level of support to the public health program. This service has been of value to the end that much of the progress made would have been otherwise impossible. It is, therefore, with considerable reluctance that the attention of the profession is directed to the partial or complete failure of many physicians to report communicable diseases. This department is fully appreciative of the heavy load that the physician is called upon to bear, and of the excellent medical care provided under great pressure. However, in our experience, the busy doctor is frequently the most prompt and conscientious in his reporting.

The local and state health departments offer the following services to aid the physician in control of communicable diseases:

1. Consultation service
2. Laboratory examination for diagnosis and control
3. Epidemilogical investigation
4. Public health nursing service
5. Sanitation investigation
6. Statistical information
7. Public health education
8. Distribution of biological materials on request.

In return the health department expects, and has the authority to require prompt and full reporting. When reporting is incomplete many of the above services lose their value, and failure or delay may result in illness and death.

Each practicing physician in the State of Virginia should report communicable diseases for the following reasons:

1. Reporting will make possible the application of maximal control measures in the prevention of illness and death in the community.
2. Reporting is a legal and ethical obligation of every practicing physician.
3. Reporting will frequently lighten the physician's responsibilities to his patients and his community.
4. Reporting will materially assist his reputation as a conscientious physician.

Each physician is urgently requested to report promptly to the local or state health officer all communicable diseases within his practice. The information reported will be treated confidentially.

Schering Sponsors Campaign for Nurses.

The serious shortage of graduate nurses in the country caused Schering Corporation of Bloomfield and Union, New Jersey, to support a campaign to induce more young women between the ages of 18 and 35 years to enter the nursing profession.

This campaign, presented in local New Jersey newspapers, was conducted with the cooperation of the Blue Cross Plans and the hospital and nursing organizations of America. The inducement presented to prospective young nurses included the advantage of salaries paid to nurses as compared to those paid to office workers, library employees, teachers, and personnel of high schools and colleges. The greater sum saved weekly by nurses after expenditures for food and rent, was pointed out in the campaign.

Schering Corporation, manufacturers of endocrine, x-ray diagnostic, chemotherapeutic and pharmaceutical products, supported this program as another step in its service to the allied professions.

XUM

WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF VIRGINIA

President—MRS. J. E. HAMNER, Petersburg
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Chairmen of Committees.

Chairmen of STANDING COMMITTEES of the Woman's Auxiliary to the Medical Society of Virginia, for the current year, are:

Hygeia—Mrs. W. M. Phipps, Hopewell
Legislation—Mrs. J. Powell Williams, Richmond
Organization—Mrs. P. M. Chichester, Richmond
Editorial—Mrs. E. Holland Trower, Eastville
Program—Mrs. C. M. McCoy, Norfolk
Public Relations—Mrs. R. M. Reynolds, Norfolk
Revisions—Mrs. E. Latane Flanagan, Richmond

Chairmen of SPECIAL COMMITTEES are:

Bulletin—Mrs. W. Clyde West, Alexandria
Cancer Control—Dr. Matilda Chalkley, Richmond
Finance—Mrs. Hawes Campbell, Richmond
Jane Todd Crawford Memorial—Mrs. J. H. Scherer, Richmond
Leigh-Hodges-Wright Memorial—Mrs. Fletcher J. Wright, Sr., Petersburg
Membership—Mrs. Robert Hightower, Alexandria

Auxiliary News.

RICHMOND

The regular monthly meeting of this Auxiliary was held November 15th, in the Academy of Medicine Building, with Dr. Matilda Chalkley presiding.

Mrs. P. M. Chichester, former State president of the Woman's Auxiliary to the Medical Society of Virginia and present chairman of organization, was the guest speaker. She spoke on *Hygeia* and *The Bulletin*, and gave a resume of the State meeting held in October at Virginia Beach.

Mrs. Emmett Mathews, luncheon chairman, was assisted by Mrs. James Blades and Mrs. W. H. Copley.

MYRTLE G. MORTON (MRS. W. R.),
Publicity Chairman.

ARLINGTON

The meeting of the Woman's Auxiliary to the Arlington County Medical Society was held at the Washington Golf and Country Club on Deecember 5th, with 25 members present. We elected, by secret ballot, and Mrs. L. O'Connor Moss was named President-elect. An addition to the By-Laws was adopted that the fee for Associate Members will be $2.00 a year; those eligible shall be wives of doctors who are active members of any other Medical Society. Bridge and refreshments followed the meeting.

On November 22nd, the Auxiliary gave a bridge party at the Washington Golf and Country Club. Each member was asked to make up a table at $1.00 per person. There was a door prize and a prize for each table. Two cakes, donated by members, were raffled off, and several pairs of nylon hose. Refreshments were served. The Auxiliary netted $100.00.

ELEANOR C. DETWILER (MRS. ROBERT H.),
Chairman, Press and Publicity.

PETERSBURG

The Petersburg Auxiliary met at the home of Mrs. Robley C. Allison on November 26th. The guest speaker, Dr. Leta J. White, who is chairman of the Advisory Council of the State Auxiliary, gave a most interesting lecture on her trip to Brazil, emphasizing the social and medical conditions there.

At the request of The Red Cross, fifteen Christmas boxes for hospitalized service men at Camp Lee were donated.

The sum of $76.00 was realized from a rummage sale held on November 29th and 30th, under the chairmanship of Mrs. C. S. Dodd.

The Auxiliary plans to hold its annual linen shower in February.

After the business meeting a social period with the serving of delicious refreshments was greatly enjoyed.

Officers for the year 1947 are as follows: President, Mrs. Robley C. Allison; vice-president, Mrs. C. W. Lynn; recording secretary, Mrs. Munford Yates; treasurer, Mrs. F. N. Taylor; historian, Mrs. J. F. Phillips; and parliamentarian, Mrs. F. J. Wright, Sr.

GRACE J. ALLISON (MRS. R. C.)

BOOK ANNOUNCEMENTS

Books received for review are promptly acknowledged in this column. In most cases reviews will be published shortly after the acknowledgment of receipt. However, we assume no obligation in return for the courtesy of those sending us same.

Medical Uses of Soap. A symposium by R. L. BAER, M. D., I. H. BLANK, Ph.D., THEODORE CORNBLEET, M. D., MORRIS FISHBEIN, M. D., G. THOMAS HALBERSTADT, B.S. Ch. E., LESTER HOLLANDER, M. D., EDWIN P. JORDAN, M. D., DANIEL J. KOOYMAN, Ph.D., C. GUY LANE, M. D., CAREY McCORD, M. D., and MARION B. SULZBERGER, M. D. Philadelphia, J. B. Lippincott Company. 1946. xi-195 pages with 41 illustrations. Cloth. Price $3.00.

The Diagnosis and Treatment of Bronchial Asthma. By LESLIE N. GAY, Ph.B., M. D., Assistant Professor of Medicine of the Johns Hopkins University School of Medicine; Director of the Allergy Clinic of the Johns Hopkins Hospital. With a foreword by Warfield T. Longcope, A. B., M. D., Professor of Medicine of the Johns Hopkins University School of Medicine; etc. Baltimore, The Williams and Wilkins Company. 1946. ix-334 pages. Illustrated. Cloth. Price $5.00.

The Chest. A Handbook of Roentgen Diagnosis. By LEO G. RIGLER, M. D., Professor and Chief, Department of Radiology, University of Minnesota. Chicago, The Year Book Publishers. 1946. 352 pages. Illustrated. Cloth. Price $6.50.

The Modern Attack on Tuberculosis. By HENRY D. CHADWICK, M.D., Superintendent of Westfield State Sanatorium, 1909-1929; Tuberculosis Controller of the City of Detroit, 1929-1933; Commissioner of Public Health of the Commonwealth of Massachusetts, 1933-1938; Medical Director of Middlesex Tuberculosis Sanatorium, 1938-1941. And ALTON S. POPE, M.D., Chief, Bureau of Communicable Diseases, Department of Health, Chicago, 1926-1929; Deputy Commissioner of Public Health and Director of the Division of Tuberculosis, Commonwealth of Massachusetts. Revised Edition. New York, The Commonwealth Fund. 1946. xiii-134 pages. Cloth. Price $1.00.

In this small book the authors have presented a summary of the current knowledge concerning epidemiology, diagnosis, and treatment of pulmonary tuberculosis. Treatment is covered in only a general way and primarily from the standpoint of the control of tuberculosis. However, one whole chapter is taken up with the functions of a sanatorium to the community.

The chief purpose of the book is to present in a concise form our present knowledge concerning the epidemiology of tuberculosis and to offer a program for the control and eradication of this disease. Emphasis is placed on the application of procedures now available for the detection of early cases of tuberculosis and on the adequate treatment of all cases of the disease. A comprehensive program of case finding is outlined and the advantages of a central case register are discussed.

In the chapter on epidemiological aspects of tuberculosis the discussions of the pathogenesis and of the predisposing factors are especially well handled. Much of the material in this chapter is new and all has been brought up to date.

This handbook, in its second edition, is written primarily for health officers and administrators of a tuberculosis control program. However, physicians interested in the treatment of pulmonary tuberculosis, especially members of the medical staffs of tuberculosis sanatoria, will also gain a great deal of useful information concerning the overall program of tuberculosis control.

E. S. RAY.

Pneumoperitoneum Treatment. By ANDREW LADISLAU BANYAI, M.D., F.A.C.P., F.C.C.P., Associate Clinical Professor of Medicine, Marquette University Medical School, Milwaukee, Wis.; formerly Preceptor in Tuberculosis, School of Medicine, University of Wisconsin; etc. St. Louis, The C. V. Mosby Company. 1946. 376 pages, with 74 illustrations. Cloth. Price $6.50.

This is a systematic and comprehensive presentation of the treatment of pulmonary tuberculosis and abdominal types of tuberculosis by pneumoperitoneum. It embraces the technique of administration, concomitant physiologic adjustments of the body to intraperitoneal air and the attending complications of this method of treatment. The author stresses its therapeutic application to tuberculous peritonitis, entercolitis, and pulmonary tuberculosis. The acceptance of this method of treatment by an ever increasing number of sanatoria makes this book timely and a valuable reference for those engaged in the treatment of pulmonary tuberculosis.

FRANK PHILIP COLEMAN, M. D.

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EDITORIAL

Hospitalization of Maternity and Infant Patients with Complications

THE April 1945 issue of the VIRGINIA MEDICAL MONTHLY carried an editorial on "A Plan for Hospitalization of Indigent Maternity and Infant Patients With Complications". That plan has continued to operate but, until the present time, sufficient funds were not available to include the larger cities with independent health departments. Effective January 1, 1947 provision was made whereby the cities are included. This means that maternity patients having complications and sick infants up to one year of age unable to obtain care because of indigency may be hospitalized. Prematurity in an infant is an acceptable reason for care under this organized plan. The maternity patient may be provided for at any time during the prenatal period, may have delivery service and continue eligible for care up to six months after delivery should a complication develop to make this necessary. No provision under this plan is made for the crippled child or for the chronically ill maternity patient or infant requiring long periods of hospitalization. The seventy-one hospitals accepting patients under this plan are so distributed over the State that they afford reasonable coverage. The amount paid to the hospitals is the cost as determined by the hospital audit. No compensation is provided for the physician other than having the patient at a place where treatment may be convenient and more effective. Indigency is determined by the local referring physician as such a method should rule out criticism that a particular patient is financially able to pay for medical care. It is possible that an occasional undeserving case is managed at public expense but it must be rare since the complaint is infrequent.

The Maternal Health Committee of the State Medical Society has sponsored this plan from its inception and has cooperated with the State Department of Health in promoting its extension. Virginia has the distinction of being the only state having a plan for the care of its indigent maternity and infant patients covering all its localities.

C. J. ANDREWS,
Chairman Maternal Health Committee.

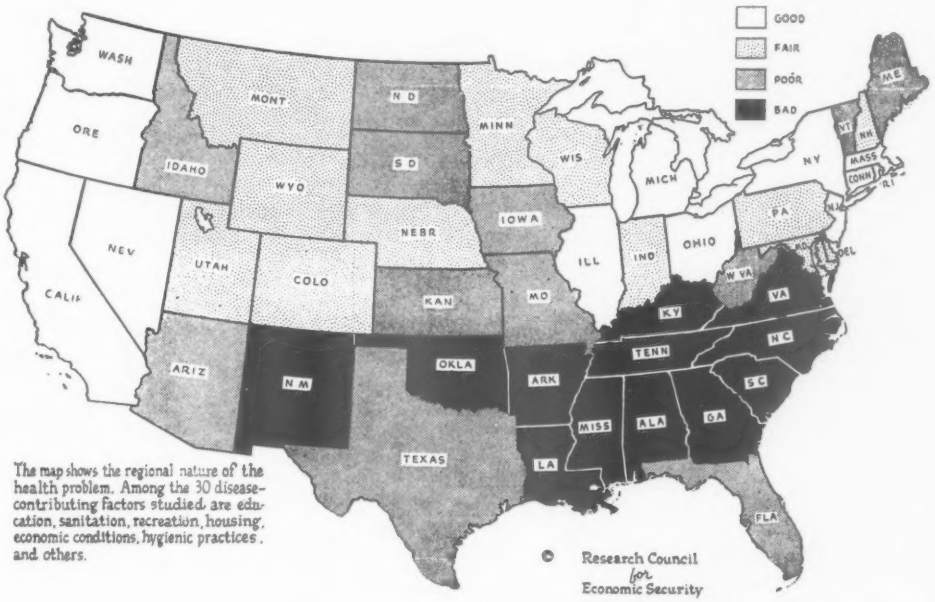
Our National Health Problem

THE above is the title of a recent study by the Research Council for Economic Security, which was distributed by the Insurance Economics Society of America. The map which was a part of the release, shows where Virginia stands in reference to this problem. The grading of the various states as good, fair, poor, and bad was based upon 30 disease-contributing factors grouped under the heads of population, mortality, sanitation, medical facilities, health insurance, economic resources, and culture. "Culture" is compounded of the percentage of illiterates in the population over 10 years of age, the percentage of high school pupils in the total school enrollment in secondary grades, school expenditure per child, expenditures per capita for public recreation by governmental units, and the number of professional and semi-professional workers in labor force per 1000 population. Just how these various factors are weighted we do not know, but in some way they add up to the fact that Virginia ranks 38th among the states.

New England ranks first in heart disease. Also the people in New England reach, on an average, a higher age than in any other region. "Since heart disease is a disease of old age, this explains why more people die from heart disease in New Eng-

land than in any other region. Mortality from heart disease in New England is evidence of long life rather than poor health." On the other hand, of the ten states leading in mortality rates from tuberculosis, eight are in the South.

Even a cursory glance at the tables in the study shows how complex the problem is. The character of the population, urban or rural, white or black, the size of families, economic resources, housing, sanitation and food are some few of the factors that enter into the National Health Problem. All of these vary tremendously geographically. There is no single remedy nor can this remedy be administered from a central point. From time to time we propose to discuss various items in the picture from the standpoint of Virginia. At present we content ourselves with two factors in the health problem that the survey did not cover, i.e., climate and maternal mortality.



The map shows the regional nature of the health problem. Among the 30 disease-contributing factors studied are education, sanitation, recreation, housing, economic conditions, hygienic practices, and others.

Virginia's climate is unsurpassed. Chamber of Commerce figures show that out-of-doors occupations can be followed practically the year round. The same can be said out door sports. We have neither hurricanes nor life-destroying floods. Our climate is free from extremes and yet there is enough variety for our people to enjoy the stimulating effect of change. In the early days when climate began to play a part in the treatment of tuberculosis it was thought that the number of sun-shiny days and a uniform warm temperature were the most important considerations. It was soon found that the most beneficial climate must have a certain amount of diurnal and seasonal variation in order to have a beneficiary stimulating effect.

Virginia's maternal mortality rate has not always been one of which we could be proud. In 1931 the rate was 7.7 per 10,000 live births. Due to the concerted efforts of the Maternal Health Committee, the Health Department, and the doctors and nurses of the State, the rate has steadily declined until now it has reached the low figure of 2.2. Few States have a lower rate. If this can be accomplished in maternal health, it can be done in other fields.

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Conference of State Secretaries and Editors

THE Conference of State Secretaries and Editors, December 7th and 8th, differed from previous ones in several respects. In the first place, there was a program committee which was appointed at the San Francisco meeting. In the second place the dinner meeting, after an address by the Hon. A. L. Miller, M.C., split up into two parts, the editors and the secretaries. The secretaries discussed commercial exhibits and problems of management, and the editors what should or should not go into a state journal. In the third place, we were addressed by the Governor of Illinois. And we might say that Governor Green gave us an inspiring address. Our neighbor, Julian P. Price of South Carolina presided over our meeting with humor and efficiency.

A feeling of confidence very definitely pervaded the meeting. At previous meetings there has been an attitude of defense and a feeling of uncertainty as to the future of medicine. This was all gone. As Congressman Miller said, the 80th Congress would be more American than any we have had in years. The recent election had shown that the people are tired of a bureaucratic government and do not want a socialized medicine. Plans for the celebration next year of the centenary of the American Medical Association were discussed. Organized Medicine has confidence in itself at last. Instead of defense tactics its accomplishments were to be discussed.

Figures show that the American people spend 3,400,000,000 dollars a year on medical care. Medicine has become big business, and needs big business methods of producing better public relations. Medical men, individually and collectively, are interested primarily in safeguarding the health of the nation. We must let the people know in every way possible our aims and purposes. A sizable portion of the public thinks that medical service costs too much, little realizing what it has cost and is costing the doctor to render such service. Admittedly, medical care costs more than ever before, but it is equally true that the public gets more for its medical dollar than ever before in the history of the world. We must let the public know that. Another part of the public thinks, and says, that the distribution of medical care is poor, and in many parts of the country unobtainable. Steps are now being taken to see if this is true. Highway maps have been sent to every county medical society upon which they can plot their spheres of activity. When these are returned, and it is hoped that they will be returned promptly, Organized Medicine will know just where it stands in regard to the distribution of medical care. Another part of the public wants a hand in management because Medicine is doing a good job and is getting results. Some of this executive ability might come in handy. It has certainly proven so in the hospital service plans, and its use would promote better public relations.

Large Decline in Mortality From Degenerative Diseases

WE have become used to the lengthening of the average span of human life until now it has reached the unbelievable figure of 63 years. The phenomenal reduction of fetal mortality no longer excites comment. We feel confident about our control and cure of infectious diseases. That there is a decline in the mortality from the degenerative diseases comes as a surprise. It is true that the crude death rate from cardiovascular-renal disease—that is, the figure before correction is made for the increasing age of the population—is higher than it was thirty years ago, but if correction be made for the changes in age distribution there is a marked reduction in the rates. According to the Statistical Bulletin, the death rate from these diseases of the policy holders of the Metropolitan Life Insurance Company, which constitutes a large cross

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section of the urban population of the U.S. and Canada, has dropped virtually 30% when corrected for the aging of the insured. This is particularly evident among white females where the corrected death rate has declined 37%. Each age group in this sex registered a material and almost continuous improvement, with the result that recent years have witnessed minimum rates at every age period. Up to the age of 25 the decline in death rate has been equally rapid for both sexes. Beyond this age, the record for the men has not been as favorable as that for the women. The general decline in the mortality from the principal cardio-vascular-renal diseases is attributed to a number of factors. In young people a very large proportion of deaths from these diseases results from previous infarctions. The decrease in heart and kidney affections reflects the successful attack upon the germ diseases of infancy and childhood. The decrease in the death rates from the degenerative diseases in adult life also reflects in part the successful treatment of germ diseases in childhood and in part the more intensive treatment of syphilis. Among women at the reproductive ages the lessened frequency of childbearing has undoubtedly been a factor. "At all ages and in each sex, such general factors as more and better medical care, better nutrition, and generally higher standards of living have contributed toward preventing premature physical breakdown."

SOCIETIES

The Tazewell County Medical Society,

At its meeting on December 5, admitted several doctors to membership, and elected the following officers for the coming year: President, Dr. James Peery, Richlands; vice-president, Dr. H. A. Porter, Boissevain; and secretary-treasurer, Dr. W. R. Strader, Richlands.

The Fourth District and Southside Virginia Medical Society

Had its last meeting on December the 10th, at which time the following officers were elected for the coming year: President, Dr. C. Edward Martin, Emporia; vice-presidents, Dr. W. M. Phipps, Hopewell, and Dr. L. H. Bracey, South Hill; secretary-treasurer, Dr. William S. Sloan, Petersburg; and chairman of the Steering Committee, Dr. Fletcher J. Wright, Jr., Petersburg.

The Mid-Tidewater Medical Society.

At the October meeting of this Society, the scientific program included papers by Dr. Douglas Chapman and Dr. R. D. Bates, Jr., of Richmond. Officers elected at this time for the ensuing year are: President, Dr. John R. Gill, Mathews; vice-presidents, Dr. R. D. Bates, Newtown; Dr. J. M. Gouldin, Tappahannock; Dr. A. W. Lewis, Jr., Aylett; Dr. H. A. Tabb, Gloucester; Dr. A. L. Van Name, Urbanna; Dr. Clarence Campbell, Sparta; and Dr. R. B. Bowles, Mathews; secretary-treasurer, Dr. Malcolm H. Harris (re-elected), West Point. Meetings are held quarterly.

The Patrick-Henry Medical Society,

At its October meeting, elected the following officers for 1947: President, Dr. W. Brown Dudley, Martinsville; vice-president, Dr. D. L. Fleshman, Bassett; and secretary-treasurer, Dr. Mason Rowe, Martinsville.

Augusta County Medical Association.

The regular quarterly session of this Association was held in Staunton, November 6th, under the presidency of Dr. G. Edmund Stone. Guest speaker was Dr. T. J. Williams, University, whose subject was Hypertension in Pregnancy. Dr. Leland Brown spoke on Management of Normal Delivery, and Dr. Kenneth Bradford gave a case report on Spontaneous Pneumothorax Complicating Virus Pneumonia. Dr. B. H. Payne, Staunton, is secretary of the society.

Wise County Medical Society.

There was an attendance of nineteen at the dinner meeting of this Society in Norton on December

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the 4th, following which Dr. E. W. Kirby gave a most interesting lecture on Urological Problems in Children. This was illustrated by pictures and specimens, and was followed by a question period which held the interest of all for forty-five minutes. Dr. W. R. Lundy spoke at length and there was considerable discussion of the business problems ahead. Dr. J. D. Culbertson of Coeburn is president, and Dr. Thomas J. Tudor of Norton, secretary-treasurer.

Virginia Peninsula Academy of Medicine.

The guest speaker at the regular meeting of the Academy on December 16 was Dr. Fletcher D. Woodward, Professor of Otolaryngology at the University of Virginia, who came upon invitation of Dr. George G. Hankins of Newport News. He talked on Diseases of the Esophagus. Dr. Robert H. Wright of Phoebus is president and Dr. C. D. Bradley of Newport News secretary of the Academy.

Roanoke Academy of Medicine.

At the December meeting of the Academy, the following scientific program was presented: Fatal Pulmonary Emboli in a Patient Two Months Pregnant by Dr. Duvahl Ridgeway; Some Observations on the Current Upper Respiratory Epidemic in Infants and Children by Dr. J. T. Humphries; and Medical Aspects of Thrombophlebitis by Dr. Robert C. Crawford. Dr. Charles A. Young, Sr., is president of the Academy and Dr. Wade Saunders secretary-treasurer.

NEWS

Annual Meeting, Medical Society of Virginia.

As Hotel Roanoke had only two dates open which were suitable for the meeting of the Society, Dr. W. L. Powell, President, canvassed members of the Council by letter as to the selection of a time for the State meeting, and dates were named as October 13-15.

Dr. Frank A. Farmer, Medical Arts Building, Roanoke, has been named by the Roanoke Academy of Medicine as chairman of the Committee of Arrangements for the meeting.

Are You a Fellow?

THE AMERICAN MEDICAL ASSOCIATION is going to celebrate its centennial in Atlantic City, June 9-13, 1947. Elaborate plans are being made for this celebration.

Only Fellows and Invited Guests are eligible to attend. Membership in your state society is the primary qualification for Fellowship in the A.M.A. Fellowship dues and subscription to *The Journal A.M.A.* are both included in one annual payment of $8.00, which is the cost of *The Journal* to subscribers who are not Fellows.

If you are not a Fellow and plan to attend the Atlantic City session, which will be a milestone in medical history, you can save yourself considerable time and confusion when registering, if you will *write now* to the American Medical Association, 535 North Dearborn Street, Chicago 10, and ask if you are eligible to become a Fellow.

State's Health Services Expanded.

Expansion of health districts in Virginia, which was slowed during the war because of lack of personnel, has received an impetus by the extension of health services to nine additional counties. Of these, Goochland, Powhatan and Amelia will form a new district, while Campbell, Amherst, Fauquier, Caroline, Charles City and New Kent will be added to existing units. For sometime, only 51 of Virginia's one hundred counties have had health services but it is hoped to have 69 included very shortly as local funds have already been appropriated in nine more counties, and State and Federal matching money is on hand for use as soon as personnel can be employed for them.

Southern Medical Association.

At the meeting in Miami, Dr. E. L. Henderson of Louisville, Ky., succeeded Dr. M. Y. Dabney to the presidency and Dr. Lucien A. LeDoux of New Orleans was named president-elect to take office next year. Dr. Oscar B. Hunter of Washington, D. C., and Dr. Robert T. Spicer of Miami were elected vice-presidents.

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Postwar Questionnaire.

The American Medical Association has sent a questionnaire to all medical officers who served in World War II, so far as they have been able to secure names and addresses, to secure information which may be made available in case of further emergency. There are a few copies available in the office of the Medical Society of Virginia and this office will be glad to send copy to any former medical officer who advises he has failed to receive his copy from the A. M. A.

Seaboard Medical Association of Virginia and North Carolina.

The annual meeting of the Association was at Kinston, N. C., December 3-5, under the presidency of Dr. Thomas Leslie Lee of that city. There was a large attendance of members and their wives and a good scientific program and several entertainments combined to make this an outstanding meeting. The Cavalier at Virginia Beach was selected as the 1947 place of meeting, and the following officers were elected: President, Dr. O. R. Yates, Suffolk; vice-presidents, Dr. D. H. Bridger, Bladenboro, N. C.; Dr. Walter P. Adams, Norfolk; Dr. H. H. Foster, Norlina, N. C.; Dr. Charles H. Lupton, Norfolk; and secretary-treasurer, Dr. Clarence Porter Jones, Newport News. This will be Dr. Jones' thirty-eighth term in this office.

To Head DeJarnette Sanatorium.

Dr. Hugh Page Newbill has been appointed superintendent of DeJarnette State Sanatorium at Staunton to succeed Dr. J. S. DeJarnette who resigned in July 1945, thus concluding a period of continuous service with the State which was begun in July 1889.

Dr. Newbill has been assistant professor of psychiatry at the University of Virginia School of Medicine, and was associated with Dr. David C. Wilson in the operation of the Davis Clinic of that hospital. Dr. Newbill entered upon his new duties January 1.

President of the American Medical Association Visits Virginia.

Dr. Harrison H. Shoulders, president, American Medical Association, visited Newport News on November 26 where he spoke before the Peninsula Institute of Public Affairs on government control of medicine. Prior to the meeting Dr. Shoulders was entertained at a cocktail party and dinner at the James River Country Club, arranged by the Virginia Peninsula Academy of Medicine, the Warwick County Medical Society and the Elizabeth City County Medical Society jointly. Present were almost 200 persons, including the wives of Peninsula civilian doctors, Veterans Administration, Army, Navy, and Public Health. Among the out-of-town guests was Dr. W. L. Powell of Roanoke, president, Medical Society of Virginia.

After Dr. Shoulders had spoken at the Newport News High School Auditorium, he was entertained by the Peninsula Junior Chamber of Commerce, which organization sponsors the Institute of Public Affairs. Dr. Shoulders came to address the Newport News audience at the request of the president of the Virginia Peninsula Academy of Medicine, Dr. Robert H. Wright of Phoebus.

A. M. A. Plans for Centennial Session.

The American Medical Association will celebrate its centennial in Atlantic City, June 9 to 13, 1947.

Arrangements call for "making it one of the greatest and most interesting medical assemblages ever convened," according to an editorial in *The Journal.*

"Each of the scientific sections of the American Medical Association has been authorized to secure a distinguished speaker from abroad and to include also in its program a review of medical progress in the specialty concerned for the hundred year period," states the editorial. "Each of the general scientific meetings will provide for the presentation of three papers constituting reviews of the advancement in the fields discussed, followed by panel discussions on such subjects as the modern management of heart disease, emergency surgery and antibiotics in therapy."

Another highlight of the centennial session is "the utilization of Sunday, June 8, as a special public health day. A religious program is being arranged with representatives of the leading faiths of our country. This will be held in the great auditorium in convention hall and will no doubt be broadcast on one of the national chains. At the same time congregations assembled for religious services elsewhere throughout the nation will be given messages regarding the advancement of medical science and the improvement in the public health that have occurred during the hundred year period.

"The division of motion pictures in the head-

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quarters office of the American Medical Association is at present engaged in the development of two motion pictures dealing with the lives of the distinguished American physicians of the period concerned and with the evolution of motion pictures in medical teaching. The first public showings are contemplated for Monday evening, June 9. . . ."

The President's Reception will be among some of the many other features planned for the centennial celebration. *The Journal* editorial states that "distinguished foreign guests, as well as the officers of the American Medical Association, will on that occasion be honored at the reception, and music will be provided by one of the leading orchestras of the nation."

Dr. Morris Fishbein, editor of *The Journal,* is writing a history of the American Medical Association which is appearing serially in *The Journal.* The complete work will be published in book form and will be available for the centennial celebration.

The Maternal Health Committee

Of the Medical Society of Virginia met December 12, in the Richmond Academy of Medicine Building, with the following members present:

Dr. C. J. Andrews, *Chairman,* Norfolk
Dr. A. L. Carson, Jr., Richmond
Dr. G. N. Carter, Boydton
Dr. A. M. Groseclose, Roanoke
Dr. C. A. Nunnally, Fredericksburg
Dr. W. R. Payne, Newport News
Dr. F. O. Plunkett, Lynchburg
Dr. M. P. Rucker, Richmond
Dr. L. L. Shamburger, Richmond

Among the things discussed were: Arrangements for hospitalization of medically indigent maternity patients with pathology; uniform reporting of stillbirths by the several States; the present status of the survey of maternal deaths and the editing of the reports for the VIRGINIA MEDICAL MONTHLY.

Dr. Brock D. Jones, Jr.,

After a residency at Philadelphia Lying-In Hospital, has returned to Norfolk and re-opened his office at 413 Medical Arts Building, for the practice of gynecology and obstetrics.

Dr. John B. Bullard,

Richmond, announces removal of his office from 807 to 912 West Franklin Street.

Chilean Hospital Program Making Rapid Progress.

Chile's war against tuberculosis, the chief cause of death in the nation, will gain new impetus this year with the completion of the new 500-bed Trudeau hospital in Santiago. Dr. Theodore I. Gandy, chief of the Institute of Inter-American Affairs medical mission in the Chilean capital, points out that the death rate for tuberculosis in the province of Santiago averaged 327.6 per hundred thousand persons from 1934 through 1943.

The Trudeau hospital is being built as a project of the joint Chilean-United States Inter-American Cooperative Department of Public Health Works. The organization has also given technical assistance in the design and construction of an addition to a tuberculosis sanitorium at San Jose de Maipo, and has planned and is helping to build a 120-bed addition to the Franklin D. Roosevelt tuberculosis sanitorium at Guayacan. It also has provided equipment for the recently completed Carabineros Hospital in Santiago.

This hospital building program is only a nucleus for future developments. For instance, in the case of the Trudeau hospital, the plans leave places for many new pavilions to be constructed by the Chilean government.

The joint Chilean-United States public health organization also has built three model health centers at Antofagasta, Santiago, and Valparaiso, and a fourth is under construction at Temuco. The centers seek to demonstrate what can be accomplished by environmental sanitation and preventive medicine.

Married.

Dr. William Vincent Rucker, Bedford, and Mrs. Emilie McClain Warnock, Philadelphia, November 28th. Dr. Rucker is a graduate of the University of Pennsylvania, Department of Medicine, in 1935, and served in the Medical Corps of the Army during the recent War.

Dr. Robert Emerson Fultz, Butterworth, and Miss Dorothy Anne Chapman, Mountsville, S. C., November 30th. He is a graduate of the Medical College of Virginia, class of 1946, and is at present serving an internship at Johnston-Willis Hospital, Richmond.

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Captain J. F. Terrell Retired.

After twenty-eight years in the U. S. Navy, Dr. Terrell retired on November 4th at which time he and his wife were guests of honor at a dinner and dance given at Port Hueneme, California, where he has been senior medical officer for the past two years. Upon leaving the Service, Dr. Terrell accepted the superintendency of Pima County Hospital in Tucson, Arizona. He is a graduate of the Medical College of Virginia, class of 1918.

Dr. Everett O. Jeffreys,

Division of Neurological Surgery, Bowman-Gray School of Medicine, Winston-Salem, N. C., was guest speaker before the Norfolk County Medical Society on December the 9th, his subject being "Certain Types of Headaches Which Are Amenable to Surgical Treatment".

Deadline.

May 1, 1947, is the deadline for entering the $34,000 prize art contest on the special subject of "Courage and Devotion Beyond the Call of Duty" (on the part of physicians in war and in peace). This contest is open to all M. D.'s in the Western Hemisphere. The exhibition will take place in conjunction with the A. M. A. Centennial Session at Atlantic City, June 9-13, 1947. For complete information, write or wire now to Francis H. Redewill, M. D., Secretery, American Physicians Art Association, Flood Building, San Francisco, California, or to the sponsor, Mead Johnson & Company, Evansville 21, Ind., U. S. A.

National Conference on Medical Service.

The 20th annual meeting of the National Conference on Medical Service will be held at the Palmer House, Chicago, on February 9. Registration will commence at 9:00 A. M. and the program will include discussions in the fields of national affairs, economics and medical education. All physicians are invited to attend; there is no registration fee. Dr. Cleon A. Nafe, Indianapolis, is President of the Conference and Dr. Creighton Barker, New Haven, is the Secretary.

Dr. C. B. Martin,

Formerly of Nokesville, announces his return from military service and resumption of practice at Manassas.

On Governor's Advisory Board.

Governor Tuck, early in December, appointed Dr. Patrick H. Drewry, Jr., Dr. Claude L. Neale, Dr. George S. Fultz and Dr. Harry Brick, all of Richmond, as members of his advisory board on mental hygiene. Others already serving on this board are: Dr. J. E. Barrett, Dr. Finley Gayle, Dr. Howard Masters, Dr. J. A. Shield and Dr. J. K. Hall of Richmond; Dr. J. R. Blalock, Marion, Dr. M. S. Brent, Petersburg; and Dr. F. H. Redwood, Norfolk.

Southern Surgical Association.

There was an excellent attendance at the annual meeting of the Association at Hot Springs, Va., December 10-12, under the presidency of Dr. Daniel C. Elkin of Atlanta. A number of doctors were admitted to membership, those from Virginia being Dr. E. C. Drash, Charlottesville, and Dr. Donald S. Daniel, Richmond. It was decided to hold the 1947 meeting at Hollywood, Fla., and the following officers were elected: President, Dr. Frank S. Johns, Richmond; vice-president, Dr. Frank Wilson, Birmingham; secretary, Dr. Alfred Blalock, Baltimore; and treasurer, Dr. Carrington Williams, Richmond.

New Fellows in American College of Surgeons.

During the Clinical Congress of the Convocation of the American College of Surgeons held in Cleveland, December 20th, the following doctors from Virginia were received into fellowship:

Elton M. Alrich	Charlottesville
Rudolph F. Antoncic	Pulaski
E. Lynwood Bagby	Richmond
Hugh Clark	Winchester
George G. Hankins	Newport News
William R. Hill	Richmond
Charles F. James, Jr.	Appomattox
Paul J. Nutter	Richmond
Philip Oden	Richlands
Edwin W. Shearburn	Charlottesville
Francis B. Teague	Martinsville

Dr. Walter D. Bigford,

Who interned at the Medical College of Virginia in 1943, and was surgical resident at the Chesapeake and Ohio Hospital, Clifton Forge, 1944-1946, announces the opening of his offices for general practice, December 1, at Port Edwards, Wisconsin.

The National Conference on Rural Health

Will hold its second annual meeting at the Palmer House in Chicago, on February 7 and 8.

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It is hoped this conference will give the doctor and the farmer an opportunity to exchange views regarding many questions which are of vital importance in developing a better health service in rural communities throughout the United States. Further information may be obtained from Dr. F. S. Crockett, chairman, Committee on Rural Medical Service of the American Medical Association.

Dr. Claude C. Coleman,

Richmond, a pioneer in neurological surgery, will serve the Veterans Administration in an advisory capacity on the overall medical care for veterans. He was one of nineteen nationally recognized doctors, nurses and social workers and dietitians recently appointed by the agency to advise it. Members will act in an advisory capacity to General Omar N. Bradley, Administrator of Veterans' Affairs, and Dr. Paul R. Hawley, chief of the VA's department of medicine and surgery, on overall policies concerning medical service to veterans.

During the war Dr. Coleman served as civilian consultant in neurological surgery to the Surgeon General and was awarded a citation by the War Department. He also served on the neurosurgical committee of the National Research Council during the war years.

News from the University of Virginia, Department of Medicine.

The Thirteenth Annual Post-Graduate Course in Ophthalmology and Otolaryngology was held at the University of Virginia Medical School on December 9, 10, 11 and 12, the following lecturers appearing on the program:

Dr. Bernard Samuels, Surgeon and Pathologist, New York Eye and Ear Infirmary
Dr. E. Burchell, Director Eno Laboratory, New York Eye and Ear Infirmary
Dr. Alan C. Woods, Ophthalmologist-in-Chief, Johns Hopkins Hospital, Baltimore
Dr. A. D. Ruedemann, Cleveland Clinic, Ohio
Dr. S. Judd Beach, Ophthalmologist, Maine Eye and Ear Infirmary
Dr. Dean M. Lierle, Professor of Otolaryngology and Oral Surgery, University of Iowa
Dr. Gabriel Tucker, Professor of Broncho-Esophagology, Graduate School, University of Pennsylvania
Dr. John Marquis Converse, New York City
Dr. J. M. Robison, Professor of Otolaryngology, University of Texas
Mr. J. M. Mullendore, Assistant Professor of Speech Education and Director of Speech Clinic, University of Virginia
Dr. Francis H. McGovern, Danville, Virginia
Dr. George Cooper, Jr., Associate Professor of Roentgenology, University of Virginia
Dr. G. Slaughter Fitz-Hugh, Assistant Professor of Otolaryngology, University of Virginia

Dr. Fletcher D. Woodward delivered four lectures before the Post-graduate Medical Assembly of South Texas December 3, 4 and 5 at Houston, Texas. He spoke before the Peninsula Academy of Medicine on December 16th at Newport News, Virginia.

On December 13th, Dr. Henry B. Mulholland, Professor of the Practice of Medicine, spoke before the staff of the Piedmont General Hospital in Altavista, Virginia, on the Anti-biotic Drugs.

Mississippi Valley Medical Society 1947 Essay Contest.

The Seventh Annual Essay Contest of the Mississippi Valley Medical Society will be held in 1947. The Society will offer a cash prize of $100.00, a gold medal, and a certificate of award for the best unpublished essay on any subject of general medical interest (including medical economics and education) and practical value to the general practitioner of medicine. Certificates of merit may also be granted to the physicians whose essays are rated second and third best. Contestants must be members of the American Medical Association who are residents of the United States. The winner will be invited to present his contribution before the Twelfth Annual Meeting of the Mississippi Valley Medical Society to be held at Burlington, Iowa, October 1, 2, 3, 1947, the Society reserving the exclusive right to first publish the essay in its official publication—the *Mississippi Valley Medical Journal* (incorporating the *Radiologic Review*). All contributions shall be typewritten in English in manuscript form, submitted in five copies, not to exceed 5000 words, and must be received not later than May 1, 1947. The winning essays in the 1946 contest appear in the 1947 issue of the *Mississippi Valley Medical Journal* (Quincy, Illinois).

Further details may be secured from Harold Swanberg, M.D., Secretary, Mississippi Valley Medical Society, 209-224 W. C. U. Building, Quincy, Illinois.

XUM

Symposium on Therapy.

The continuance education department of the Medical College of Virginia will present a "Symposium on Therapy" at the College on February 18 and 19. The program will consist of 15-minute presentations covering a wide range of subjects, as well as panel discussions on "Peptic Ulcer Therapy", "Management of Blood Disorders", and "Chemotherapy". All physicians are invited to attend, and there will be no charge. The tentative program is as follows:

TUESDAY, FEBRUARY 18, 1947

9:00- 9:15—Treatment of Rheumatic Fever. Dr. Louise Galvin.
9:15- 9:30—Management of Cardiac Failure. Dr. J. M. Hutcheson.
9:30- 9:45—Treatment of Phlebitis and Its Complications. Dr. I. A. Bigger.
9:45-10:00—Management of Hypertension. Dr. W. B. Porter.
10:00-10:15—Treatment of Urinary Infections. Dr. A. I. Dodson.
10:15-10:30—Treatment of Acute Pelvic Infection. Dr. Randolph Hoge.
10:30-10:45—Treatment of Dysmenorrhea. Dr. Henry Spalding.
10:45-11:00—Management of Thyrotoxicosis. Dr. Elam Toone.
11:00-11:15—Intermission.
11:15-11:30—Treatment of Bacterial Pneumonia. Dr. J. H. Smith.
11:30-11:45—Treatment of Viral Respiratory Infections. Dr. M. M. Pinckney.
11:45-12:00—Management of Suppurative Lung Disease. Dr. Porter Vinson.
12:00-12:15—Treatment of Non-Tuberculous Empyema. Dr. Dean Cole.
12:15-12:30—Treatment of Sinusitis. Dr. E. Wallerstein.
12:30-12:45—Treatment of Migraine. Dr. Warrick Thomas.
12:45- 1:00—Use of Anti-Histaminic Drugs. Dr. Emmett Matthews.
1:00- 2:30—Lunch. Panel Discussion on "Treatment of Peptic Ulcer", led by Drs. T. N. Barnett, Carrington Williams, T. D. Davis, T. T. Thompson, and C. M. Caravati.
2:30- 2:45—Management of Burns. Dr. Everett I. Evans.
2:45- 3:00—What Insulin Should You Use? Dr. William Jordan.
3:00- 3:15—Management of Diabetic Coma. Dr. John Lynch.
3:15- 3:30—Treatment of Acute Cholecystitis. Dr. Frank S. Johns.
3:30- 3:45—Treatment of the Spastic Colon. Dr. J. M. MacMillan.
3:45- 4:00—Management of Gastro-Intestinal Bleeding. Dr. Guy Horseley.
4:00- 4:15—Management of Obesity. Dr. Harry Walker.
4:15- 4:30—Treatment of Chronic Liver Disease. Dr. C. M. Caravati.
4:30- 4:45—Panel on Blood Disorders. Led by Drs. J. P. Baker, J. Powell Williams, J. H. Scherer, and George Z. Williams.

8:00 —Streptomycin. Invited guest.
8:30 —Symposium on Chemotherapy. Led by Drs. H. Haag, S. Page, W. H. Harris, Allen Pepple.

WEDNESDAY, FEBRUARY 19, 1947

9:00- 9:15—Immunization of Children. Dr. Lee Sutton.
9:15- 9:30—Case of the Undernourished Child. Dr. B. B. Jones.
9:30- 9:45—Treatment of Uremia. Dr. Arthur Klein.
9:45-10:00—Treatment of Acute Nephritis. Dr. Kinloch Nelson.
10:00-10:15—Management of Edema. Dr. D. G. Chapman.
10:15-10:30—Recent Advances in Therapy of Syphilis. Dr. Campbell Manson.
10:30-10:45—Treatment of Rheumatoid Arthritis. Dr. W. H. Higgins.
10:45-11:00—Pruritis Ani. Dr. Robert Terrell.
11:00-11:15—
11:15-11:30—When to Use Vitamins.

Another Instructive Program,

To which all physicians are cordially invited, is that of the Virginia Section of the American College of Physicians which will be at McGuire Veterans Administration Hospital, beginning at 1:00 P. M., February 19th. The following scientific program will be presented:

1:00-1:15—Rheumatoid Spondylitis. Dr. Elam Toone.
1:15-1:30—Ductus Arteriosus: Diagnosis and Surgical Indications. Dr. W. B. Porter.
1:30-1:45—Streptomycin in Brucellosis. Dr. Sidney Page.
1:45-2:00—Xanthomatous Biliary Cirrhosis. Dr. T. D. Davis.
2:00-2:15—Nitrogen Mustard in Malignant Lymphomas. Dr. St. George Tucker.
2:15-2:30—Reticulo-endotheliosis. Dr. T. R. Kriz.
2:30-2:45—Intermission.
2:45-3:00—Panniculitis. Case report. Dr. J. Powell Williams.
3:00-3:15—Pneumoperitoneum in Pulmonary Tuberculosis. Dr. W. E. Roye.
3:15-3:30—Vagotomy for Peptic Ulcer. Dr. J. O. Burke.
3:30-3:45—Penicillin in Cardio-Vascular Syphilis. Dr. Reno Porter.
3:45-4:15—Demonstration of Organic Neurologic Cases. Dr. B. Nagler.
4:15-5:15—Panel Discussion of the Above Topics, led by the Essayists.

XUM

For Sale.

Eye, Ear, Nose and Throat equipment and instruments. If interested write for detailed list and description. Dr. E. G. Hall, 720 Tyler Avenue, Radford, Virginia. (*Adv.*)

For Sale.

GE X-ray, Model 1775, 30 ma, 85 KVP, table with Bucky. In excellent working condition. James P. King, M. D., Radford, Virginia.

OBITUARIES

Dr. George Franklin Simpson,

A former president of the Medical Society of Virginia, died at his home in Purcellville on December 24th after an illness of several months. He was seventy-seven years of age and graduated from the National University in Washington in 1901, receiving both the degrees of medicine and dentistry. Dr. Simpson had practiced in Loudoun County for almost forty years and had taken an active part in civic and medical affairs of the County. He was a member of the Board of Directors of the Loudoun County Hospital, twice president of the Loudoun County Medical Society, and a former president of the Virginia, District of Columbia, and Maryland Medical Society. Dr. Simpson had always taken an active interest in the Medical Society of Virginia, having served as Councilor, vice-president, as a member of committees, and was elected president at the 1938 meeting. His wife died several years ago.

Dr. Lewis Holladay,

Dean of Physicians of Orange County, died December 10th, at the age of seventy-seven. He received his medical degree from the University of Virginia in 1896 and since that time had practiced in Orange County. Dr. Holladay had been county health officer since he began practice and was the only coroner the county has ever had. He was local surgeon for the C. & O. Railway and a member of the Board of Directors of the National Bank of Orange. Dr. Holladay was a member of the State Board of Medical Examiners, having been appointed in 1911, and served with the exception of two terms until his death. He had been a member of the Medical Society of Virginia for forty-nine years. Three sons and three daughters survive him.

Dr. Flavius Ogburn Plunkett,

Prominent Lynchburg physician, died December 18th after less than a day's illness. He was a native of North Carolina and sixty years of age. He graduated from the former University College of Medicine, Richmond, in 1911, and served overseas during World War I with Evacuation Hospital 40. Dr. Plunkett then became a specialist in obstetrics and gynecology and was considered a pioneer in this field. He was a former president of the South Piedmont Medical Society and the Lynchburg Academy of Medicine and was a member of the South Atlantic Association of Obstetricians and Gynecologists. Dr. Plunkett had been an active member of the Medical Society of Virginia for thirty-five years. At the time of his death he was a member of its Committee on Maternal Health. His wife and three children survive him.

Resolutions on Death of Dr. St. Clair.

On November 17, 1946, as the sunlight announced the dawn, quietly as he had always lived, at his home in Bluefield, West Virginia, Doctor Charlie St. Clair "Crossed The Bar and Put Out to Sea" to say hello to friends who have said goodbye.

Sleep on Soldier of Humanity. Surely a soldier as the one who faces the withering fire of machine guns, a soldier that faced the frost and snow, and kept the long vigil of the lonely night to bring comfort to those in pain, and by wise counsel assured those in despair.

Tazewell County Medical Society trusts a "Happy Landing" and that you are now living in the sunshine of God's love, enjoying a deserved and well earned rest.

"Unto his hands the healing touch
That makes faith whole again;
That comforts and brings cheer,
To every cry of anxious hearts."

WHEREAS, Almighty God has seen fit to take from our midst our friend and co-worker, Dr. Charles T. St. Clair, Sr., and,

WHEREAS, we, the members of The Tazewell County Medical Society, are deeply grieved by his passing and will miss his genial presence and wise counsel,

THEREFORE, BE IT RESOLVED that we extend to his family our deepest sympathy in their sorrow;

BE IT FURTHER RESOLVED that a copy of these resolutions be sent to Dr. Charles T. St. Clair, Jr., and be spread upon the minutes of the Society.

M. B. CROCKETT
J. W. WITTEN
MARY E. JOHNSTON

Dr. John William Preston.

As we go to press, we learn with deep regret of the death on January the 1st of Dr. Preston, of Roanoke, an ex-president of the Society and for many years secretary-treasurer of the State Board of Medical Examiners.